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FISH AND WILDLIFE MANAGEMENT REPORT

PROVINCE OF ONTARIO

DEPARTMENT OF LANDS AND FORESTS

Division of Fish and Wildlife

Hon. Clare E. Mapledoram
Minister

F. A. MacDougall
Deputy Minister

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(THESE REPORTS ARE FOR INTRA-DEPARTMENTAL INFORMATION AND NOT FOR PUBLICATION)

A SEX RATIO AND SIZE-CLASS ANALYSIS OF THE BEAVER CATCH OF THE 1952-53 TRAPPING SEASON IN THE WHITE RIVER FOREST DISTRICT

by
C. W. Douglas

Introduction

During discussion with trappers concerning beaver populations the remark has been heard that the number of male beavers in the catch is greater during periods when open-water trapping methods are employed.

To check the validity of this remark, establish the sex ratio for the entire season's catch and determine fluctuations in dominance of the various size classes throughout the year mimeographed forms (see copies attached) were forwarded for completion to each trapper who operated in the White River District during the 1952-53 trapping season (Nov. 1/52 to May 21/53). These forms requested that the trapper make note of sex, size of pelt and date of capture for each beaver taken by him during the season.

The size of pelt asked for on the form was that used to classify beaver skins on the fur markets:

XXL	- 65" plus
XL & L	- 55" - 65"
M	- 45" - 55"
S	- under 45"

- these measurements consisting of the totals of the greatest length and width of the stretched pelts.

All trappers are well acquainted with the above size classes. It was believed that a request for measurements in addition to the foregoing, desirable as they might have been, would only have added confusion and lowered the number of returns received from the trappers.

To the time that analysis of the data was begun, utilizable returns had been received from 30 trappers covering a total of 1259 beavers.

Numerous other returns were received but either arrived after analysis had begun or were incomplete insofar as requested information was concerned.

Sealing reports were checked to determine that all reports utilized were based on all or nearly all animals captured by the trapper, it being believed that incomplete returns could contribute considerable bias due to sampling error of the reported portion of the catch.

Wherever the reports of individual catches are considered per sex ratio in the construction of graphs no returns covering less than 25 beavers are considered to avoid the bias probable in small samples.

Sex Ratio

The 1259 beavers were separated according to period of capture - (bi-weekly periods throughout the season) - and according to sex. Table No. 1 summarizes these data which are plotted on Graph No. 1.

The bi-weekly interval is quite sufficient to show fluctuations in sex ratio without masking detail and provides that in no instance is a sex-ratio datum point based on less that 50 individuals.

It will be noted that the percentage of male beaver varies from 49% to 68% with a seasonal figure of 59.5%.

The greatest degree of male dominance in the catch is to be found at either end of the trapping season with an eight-week period, January 11-March 7, during which the sex ratio is balanced or nearly so.

Those periods during which males were most dominant in the catch were attended by open water of varying extent in many of the lakes and streams. From late December until mid-March the lakes and streams were, for all intents and purposes, fully icebound.

Calculating the Bravais - Pearson coefficient of correlation for the relationship between percentage of capture during open-water periods and degree of dominance of males in the individual catches gave a positive value of 0.5123 strengthening the belief in the existence of relationship between these variables.

Data re the above are summarized in Table No. 2 and show on Graph No. 2.

Standard deviations for the percentage of males in the catch is 6.368 giving a coefficient of variation of 0.1073 or 10.73% of the mean (See Graph No. 3 (a)).

It is seen that it is primarily the three points on the extreme right of Graph No. 2 which demand the curvilinear pattern for the regression line. Omitting these three points from our calculation of the coefficient of correlation reduces the positive value of this relationship to 0.44879 confirming the tendency toward the right or increase in dominance of males with increased percentage of open-water trapping effort.

It is acknowledged that the Bravais - Pearson coefficient of correlation is intended for use with data having primarily straight-line relationships so that its value will not be absolutely significant of the true state of the relationships of our data due to the curvilinear regression line.

In brief, it may be stated that the percentage of male beaver in the catch drops from a high point during the fall trapping period to a low point during mid-winter and rises again to an even higher point during the spring trapping months.

Probable Explanation of the Variations in Sex Ratio

Considering trapping methods employed at various seasons of the year may afford some explanation to account for the excess of males captured during open-water periods.

During open-water beaver traps are placed, governed to some extent by signs of beaver activity, along streams and lakeshores, the trap-site receiving an application of a scent constructed from beaver castor.

Scent stations are believed to be used by beavers to delimit the territory under the "ownership" of a beaver colony and to mark the presence in an area of new animals seeking mates. It is logical to assume that a scent station of origin unknown to the members of a beaver colony would be investigated by the beaver upon whose "domain" the trapper had placed it.

Heavy scarring noted especially among male beaver leads us to propose that it is the male who would establish himself as the "protector" of the colony's home area. Thus the male should be the one most liable to investigate a strange scent station, suspecting an intruder, and hence be more susceptible than a female to open-water trap stations enhanced by beaver scent.

During the mid-winter period beaver sets are placed, almost without fail, in the immediate vicinity of a beaver lodge and rely, primarily, for their effectiveness upon the utilization of an attractive portion of prime beaver food. This bait seldom receives an application of scent and in view of its proximity to the lodge a set of this nature should be equally effective against all members of a lodge with no selectivity as regards sex.

The foregoing discussion of trapping methods may account for the unbalanced sex ratio of the total catch which is biased by reports favouring open-water trapping.

Criticism of the Sex Ratio Data and the Proposed True Sex Ratio

Examination of our data reveals that it is biased decidedly in favour of the open-water trapping period. See Graph No. 3 and Table No. 3. In view of this bias and because we have established that males are dominant in the catch during this period we can assume that our total sample will be biased in favour of male beaver.

From this we may assume that our sex ratio of 59.5% males, based upon the catch of the entire season does not represent the true sex ratio of the beaver population.

It may be logical to conclude that the 50:50 ratio of the catch during the mid-winter period, that portion of the year when the sets employed should be equally effective against all members of a beaver lodge, gives more nearly the correct picture of the sex ratio of the population. This ratio agrees well with Osborne's work (Age Classes, Reproduction and Sex Ratios of Wyoming Beaver: Journal of Mammalogy, Vol. 34, No. 1, pp. 27-44) in which a nearly balanced sex ratio is reported.

Apparently an excess of open-water trapping could create a decided imbalance in a beaver population. Since the beaver is reported to be polygamous and probably also polyandrous a trapping effort, such as has been described, tending to create an unbalanced sex ratio would likely have little effect in limiting breeding success during a period of high population density such as exists at present. In recent years the trappers' catch has been far below that which could restrict the beaver population at a desired level below the upper asymptote of a Reid - Pearle curve so that now, due to economic circumstances acting on the excessively high beaver population any serious depletion

of the beaver stock will be due to factors other than trapping effort.

The possible effect on breeding success of creating an imbalance in sex ratio during periods of very low population density is obvious.

We might, then, recommend that in a specific area or on a province-wide basis, whenever the beaver population reaches a low ebb, any trapping season permitted for this furbearer should be limited to the mid-winter months to be more certain of retaining a balanced breeding stock.

Seasonal Fluctuations in the Size Classes of the Beaver Catch

As noted in the introduction, in addition to sex, the trapper was requested to record the size class of the beaver and the date captured.

The size classes used were those which have for years been utilized by the fur markets in classifying beaver pelts as to size:

XXL	- Super blanket	- 65" plus
XL & L	- Blanket and large	- 55" to 65"
M	- Medium	- 45" to 55"
S	- Small	- under 45"

- These measurements are calculated by summing the greatest length and greatest width of a dried pelt. Some dealers use a measurement for length which extends from the posterior margin to a line drawn between the eye-holes of the pelt.

On the basis of 1259 beaver the data were analyzed to determine the percentage of each size-class captured during each bi-weekly period for the entire season (Nov. 1-May 21).

Data respecting the above are summarized in Table No. 4, and illustrated on Graphs No. 4 (a) and 4 (b).

During the fall-trapping period the beaver are actively engaged in completing their winter feed caches. Signs of their cutting activities govern the location of the trap sites. At this period we see that the larger beaver are at their point of greatest dominance in the trappers' catch. Since the larger beaver are declared by trappers to be those most active in the feed-pile work

their dominance in the catch at this time is to be anticipated.

The tendency to capture larger beavers decreases with progress of season and finds its low point near the termination of the trapping season.

Small beavers (Class S) find their period of maximum percentage in the catch during the winter period (Dec. 28-Mar. 7). Reasons for this will follow the same line of consideration as carries out for fluctuations of sex ratio: viz, the traps, being set near the lodge during winter, should be equally effective against all beavers resident in the lodge.

There is another small increase in dominance of the smaller size classes (S and M) during the spring period. At this time the birth, or imminent birth, of the litter of the current year will cause expulsion of the two-year-olds from the lodge to fend for themselves. During their wanderings these smaller beavers will be most susceptible to the scent-station trap-sets then in use.

Considering the foregoing we may speculate that trapping effort during the fall crops too heavily the larger animals, the breeding stock of a beaver population, whereas spring trapping will harvest a greater percentage of the smaller and, considering current prices, the relatively worthless pelts.

In the author's opinion the winter months (Dec. 28-Mar. 7) represent the period during which the optimum harvest of beaver, from a management point of view, is taken. At this time the larger beavers, the breeding stock, are not so subject to overcropping and the smaller beavers contribute their fair share toward completion of a quota in the ratio in which they might be expected to exist in the population.

It is unfortunate that this period of optimum catch is also a period during which difficult travel and trapping conditions due to deep snow and thick ice cause a lowering in intensity of beaver trapping effort.

The facts that the very best of fur quality exists during the winter period and that considerable damage to pelts is caused by fighting during open-water periods cannot be ignored.

It is an oft-reported fact, which has been witnessed by the author, that a beaver held alive in a

trap may be severely mauled by other beavers which encounter it in this situation. Serious damage to a pelt results from this mauling, lowering its worth or rendering it completely useless. A beaver is most-often found in such a condition as this during open-water periods when jamming of the slip-ring on the plunge-pole or shallow water sets preclude the drowning of the captured beaver. This mauling is likely due to the same factor in animal psychology which will cause a wolf, wounded by a hunter's gun, to be killed by the rest of the pack. Action such as this is often seen when a dog is struck and injured by an automobile and is immediately set upon by all other dogs in the area.

As has already been stated under sex ratios, probably we need have little fear concerning an improper harvest during the current high level of the beaver population. However, reducing the breeding stock extensively or cropping heavily the less valuable portion of a population during a period of beaver scarcity would be most unwise management practice; management being governed both by the biological point of view and the financial return to be realized from a venture.

Conclusion

From the data at hand we may conclude that in order to harvest the optimum crop of beaver, considering sex ratio and size-class composition of the catch and the economic and biological points-of-view the season which is most desirable for the harvesting of beaver is encompassed by those dates between which all lakes, rivers and streams are fully icebound.

Summary:

Questionnaires completed by trappers of the White River Forest District furnished data concerning the sex, size-class of pelt and date-of-capture of 1259 beaver captured between Nov. 1/52 and May 21/53.

The sex ratio of the catch was found to be heavily biased in favour of males during open-water trapping periods. A balanced sex ratio occurred in the catch taken during the period when the lakes, rivers and streams were fully icebound. The unbalanced sex ratio taken during open-water periods is believed to be due to trapping methods and beaver habits.

The dominant size class varied through the season from a catch biased in favour of capture of larger beaver during the early portion of the trapping season to one

which finds the smaller beavers dominant in the catch at the season's end.

A catch which is likely representative in distribution of both size class and sex ratio is believed to be taken during the mid-winter months.

From a management point-of-view respecting both sex ratio and size class the optimum beaver harvest is taken during that portion of the trapping season when lakes, rivers and streams are icebound.

TABLE NO. I - Fluctuations in Dominance of Male Beaver With Progress of Season.

Period of Capture	No. ♂	No. ♀	M ♂ + ♀	% ♂	% ♀	
Nov. 1 - 15	59	39	98	60	40	Fall Trapping
Nov. 16 - 29	47	32	79	60	40	
Nov. 30 - Dec. 13	42	24	66	64	36	
Dec. 14 - 27	29	21	50	58	42	
Dec. 28 - Jan. 10	33	24	57	58	42	Winter Trapping
Jan. 11 - 24	33	35	68	49	51	
Jan. 25 - Feb. 7	29	29	58	50	50	
Feb. 8 - 21	37	36	73	51	49	
Feb. 22 - Mar. 7	33	31	64	52	48	
Mar. 8 - 21	52	29	81	64	36	Spring Trapping
Mar. 22 - Apr. 4	42	39	81	52	48	
Apr. 5 - 18	52	24	76	68	32	
Apr. 19 - May 2	51	26	77	66	34	
May 3 - 16	170	95	265	64	36	
May 17 - 21	40	26	66	61	39	
M Nov. 1 - May 21	749	510	1259	59.5	40.5	

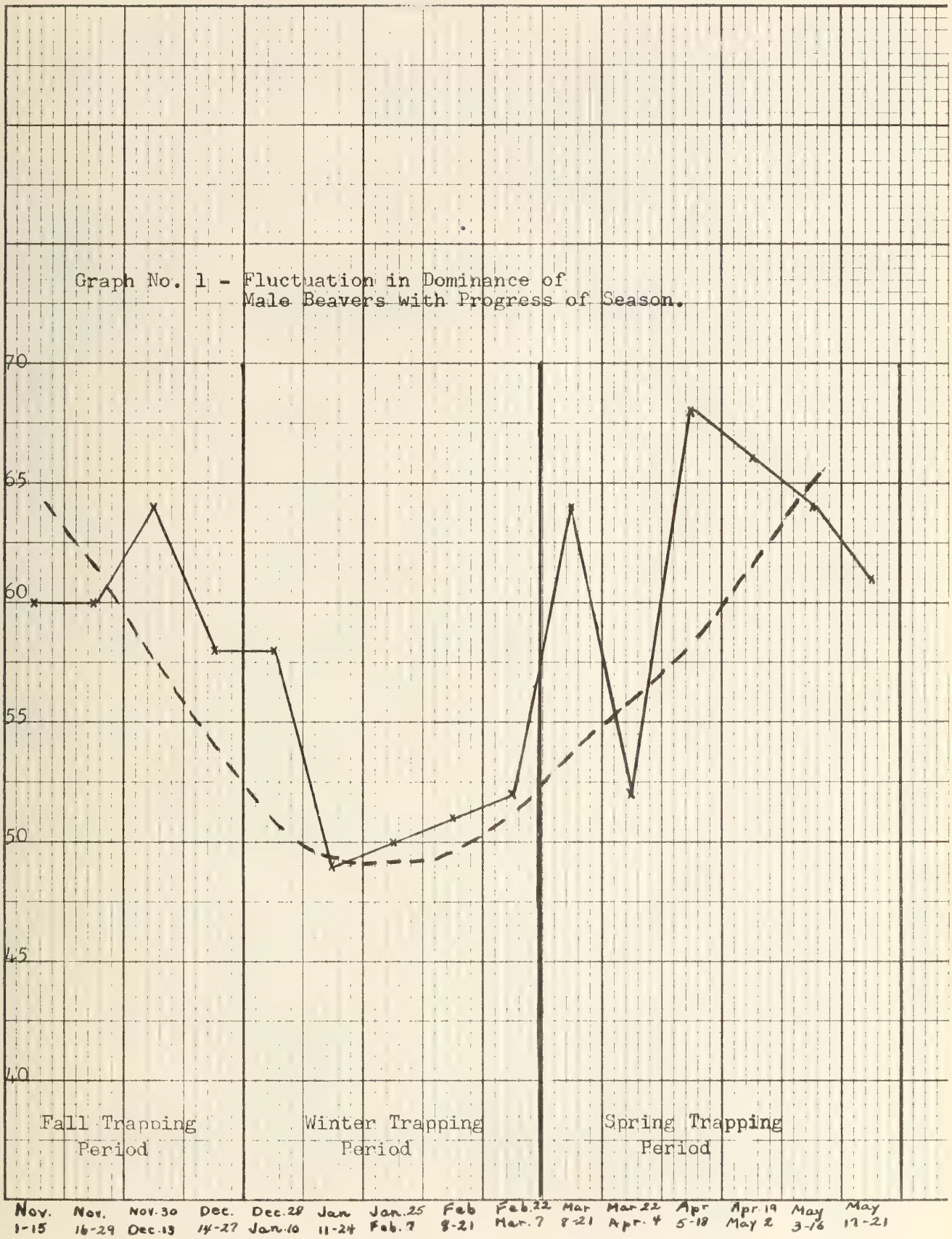
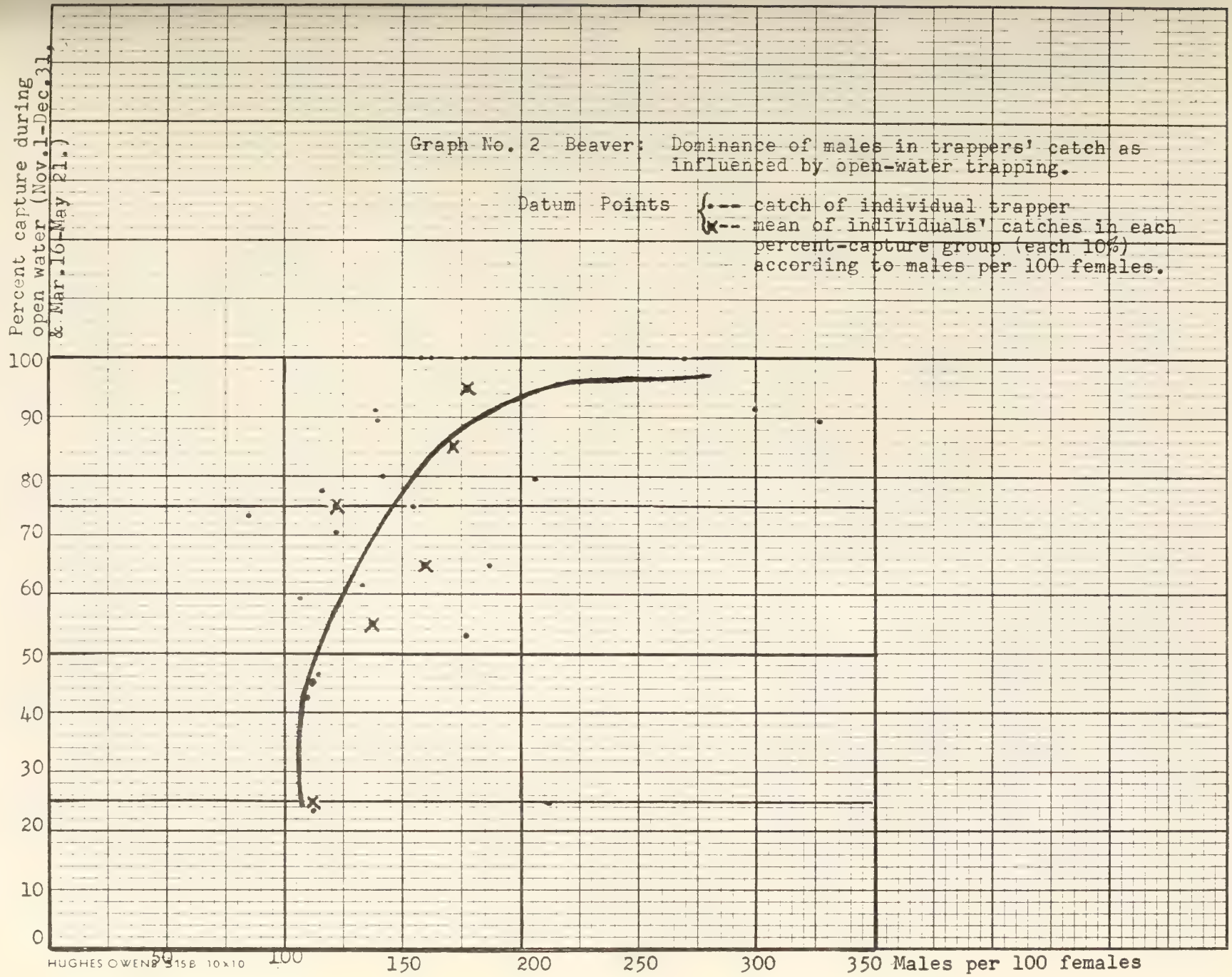

Graph No. 1 - Fluctuation in Dominance of Male Beavers with Progress of Season.
70
65
60
55
50
45
40
Fall Trapping Period
Winter Trapping Period
Spring Trapping Period
Nov. 1-15
Nov. 16-29
Nov. 30 Dec. 13
Dec. 14-27
Dec. 28 Jan. 10
Jan 11-24
Jan. 25 Feb. 7
Feb 8-21
Feb. 22 Mar. 7
Mar 8-21
Mar 22 Apr. 4
Apr 5-18
Apr. 19 May 2
May 3-16
May 17-21

TABLE NO. II - Beaver - Dominance of Males in Trappers' Catch as Influenced by Open-Water Trapping.

Percent Open-Water Trapping	Trapper	Composition of Catch: Male	Female	Male/100 Female
20 - 30	F. Kushick	38	34	112
30 - 40	Nil	-	-	-
40 - 50	E. Black	22	20	110
	L. Kushick	31	28	111
	P. Nabigon	15	13	115
	Total 40 - 50	68	61	111.5
50 - 60	E. Nabigon	47	44	107
	E. Lake	27	10	177 ?
	Total 50 - 60	74	54	137
60 - 70	C. Iserhoff	32	23	134
	C. W. Lethbridge	28	15	187
	Total 60 - 70	60	38	158
70 - 80	M. Tookenay	28	33	85
	J. Rousseau	72	62	116
	C. Millar	28	23	122
	E. Iserhoff	17	11	155
	D. Souliers	33	16	206
	Total 70 - 80	178	145	122.5
80 - 90	A. Tookenay	27	20	140
	E. Wissian	41	28	141
	A. Cook	36	11	327
	Total 80 - 90	104	59	171.5
90 - 100	C. Nabigon	32	23	139
	W. Sheshequin	19	12	158
	W. Hubert	15	10	162
	O. Renaud	46	26	177
	E. Lake	27	10	270
	W. Sayyea	18	6	300
	Total 90 - 100	156	87	179.5


Graph No. 2 Beaver: Dominance of males in trappers' catch as influenced by open-water trapping.
Datum Points {.-- catch of individual trapper
x-- mean of individuals' catches in each percent-capture group (each 10%) according to males per 100 females.
Percent capture during open water (Nov.1-Dec.31, & Mar.16-May 21.)
100
90
80
70
60
50
40
30
20
10
0
50
100
150
200
250
300
350 Males per 100 females
HUGHES OWENS 3158 10x10

Graph No. 3 Beaver:
Frequency distribution of trapper catches according to percentage of capture during open water.

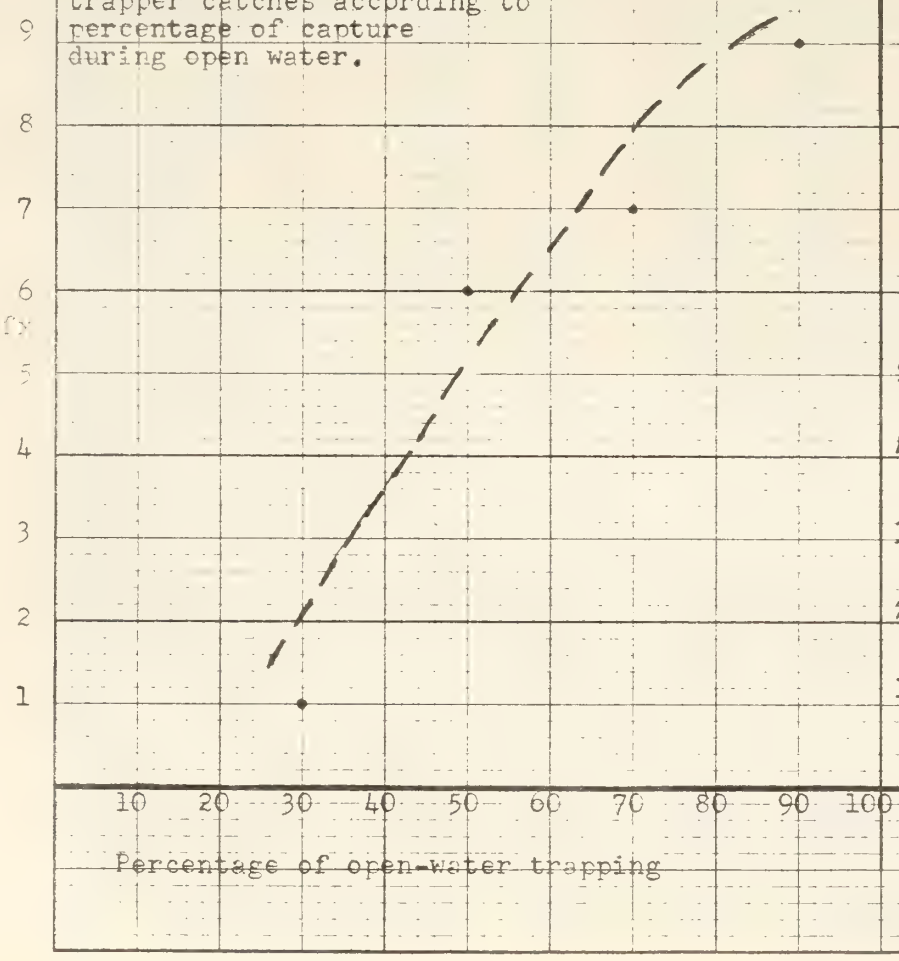
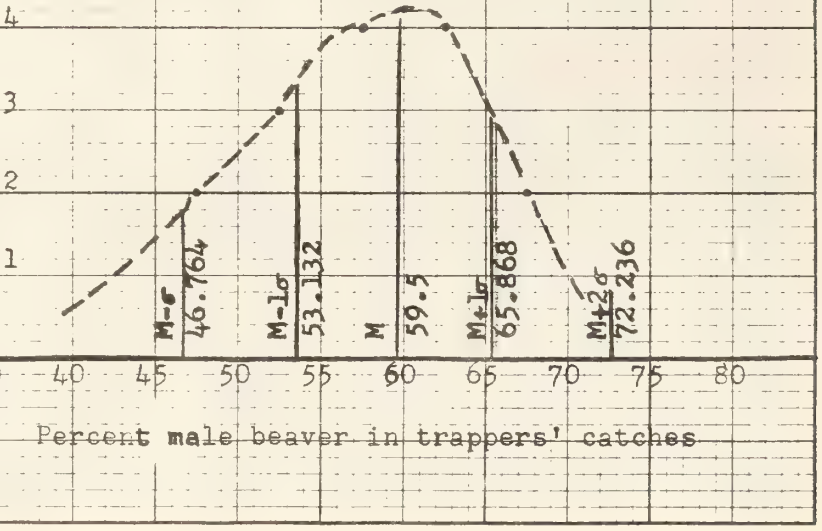


Table No. 3

Frequency distribution of Trapper catches according to percentage of open - water capture.

% open - water trapping	fx
20 - 40	1
40 - 60	6
60 - 80	7
80 - 100	9

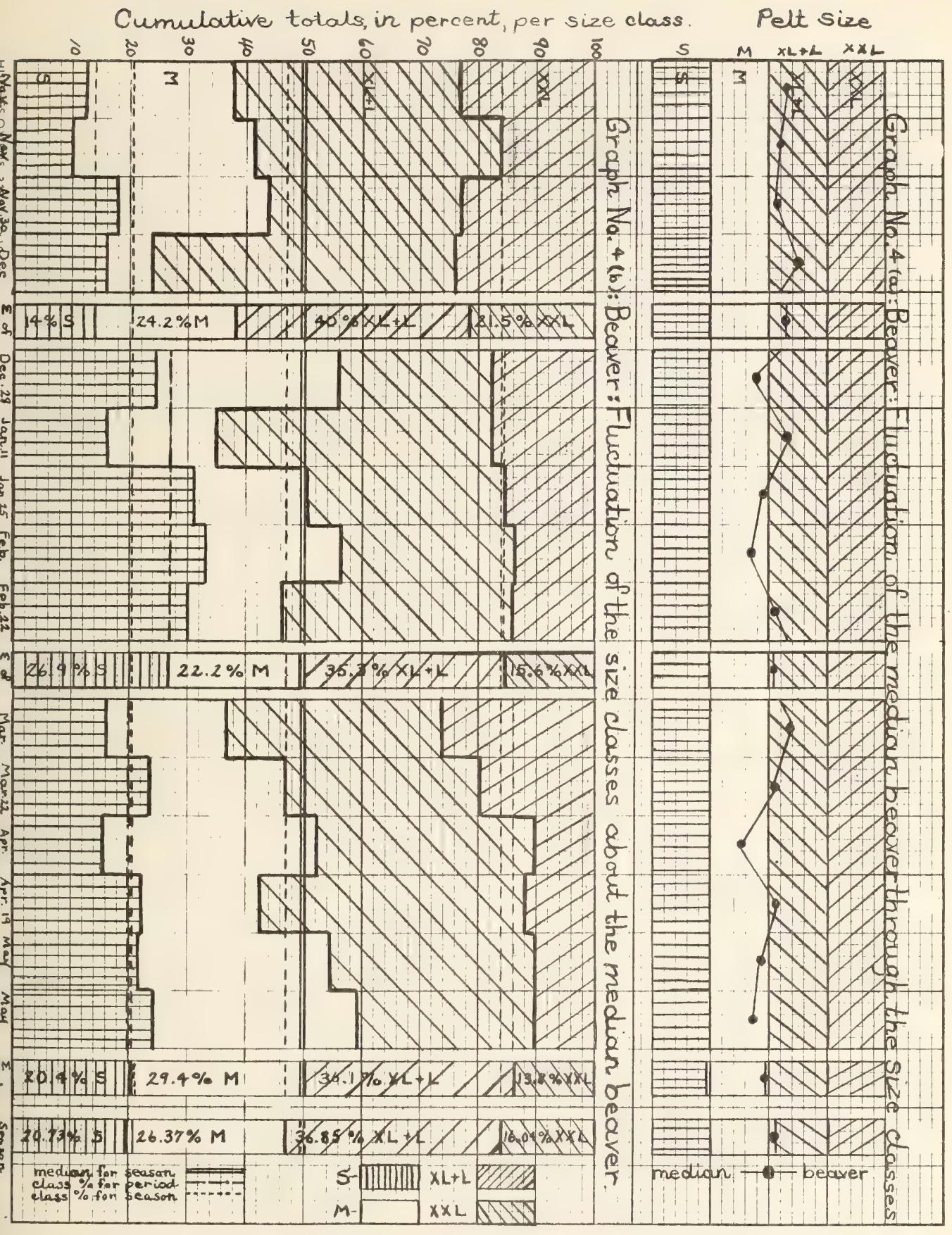
Graph No. 3 (a). Beaver:
Frequency distribution of percent male beaver in trapper catches.



HUGHES OWENS 315B 10x10

TABLE NO. IV - Beaver - Percent Capture Per Size Class According to Period of Capture.

	Composition of Catch								
	XXL		XL+L		M		S		
Trapping Period	No.	Percent	No.	Percent	No.	Percent	No.	Percent	Total Catch
Nov. 1-15	23	23	37	337	25	25	13	13	98
Nov. 16-29	13	16.5	33	42	25	31.5	8	10	79
Nov. 30-Dec. 13	15	23	22	33	17	26	12	18	66
Dec. 14-27	12	24	26	52	4	8	8	16	50
Total Nov. 1-Dec. 27	63	21.5	118	40	71	24.2	41	14	293
Dec. 28-Jan. 10	10	17.5	15	26.3	18	31.6	14	24.6	57
Jan. 11-24	12	17.7	32	47	13	19.1	11	16.2	68
Jan. 25-Feb. 7	9	15.5	19	32.8	12	20.7	18	31	58
Feb. 8-21	10	13.7	22	30	17	23.3	24	33	73
Feb. 22-Mar. 7	9	14	25	39	11	17.2	19	29.8	64
Total Dec. 28-Mar. 7	50	15.6	113	35.3	71	22.2	86	26.9	320
Mar. 8-21	21	26	30	37	17	21	13	16	81
Mar. 22-Apr. 4	16	19.7	27	33.4	19	23.4	19	23.4	81
Apr. 5-18	8	10.5	28	36.8	28	36.8	12	15.8	76
Apr. 19-May 2	9	11.7	35	45.5	16	20.8	17	22	77
May 3-16	28	10.5	93	35	87	33	57	21.5	265
May 17-21	7	10.5	20	30.3	23	35	16	24.2	66
Total Mar. 8-May 21	89	13.8	233	36.1	190	29.4	134	20.4	646
Total Nov. 1-May 21	202	16.04	464	36.85	332	26.37	261	20.73	1259


Graph No. 4 (a): Beaver: Fluctuation of the median beaver through the size classes
Graph No. 4 (b): Beaver: Fluctuation of the size classes about the median beaver.
Cumulative totals, in percent, per size class.
Pelt Size
S
M
XL+L
XXL
median
beaver
14% S
24.2% M
40% XL+L
21.5% XXL
26.9% S
22.2% M
36.3% XL+L
16.6% XXL
20.4% S
29.4% M
36.1% XL+L
13.2% XXL
20.73% S
26.37% M
36.85% XL+L
16.04% XXL
median for season
class % for period
class % for season
Hunters Notes
1-15
16-29
Nov. 30
Dec. 13
Dec. 27
End of fall trapping
Dec. 29
Jan. 10
Jan. 11
Jan. 24
Jan. 25
Feb. 7
Feb. 8-21
Feb. 22
Mar. 7
End of winter trapping
Mar. 8-21
Mar. 22
Apr. 4
Apr. 5-18
Apr. 19
May 2
May 3-16
May 17-31
End Spring Trapping
Season Totals.

Whenever you trap a beaver, please make note of it on this form. If it is a male, place an "M" in the space showing the size of the pelt. If it is a female, place an "F" in the proper place. Please make note of the date trapped.

BEAVER

Trapper _____ Trapline No. WH- _____

In order to determine the sex and the sizes of beavers trapped on your line, please fill out this form during the trapping season and return it to this office at the end of trapping season.

		Pelt Size			
No.	Date Trapped	XXL	XL-L	Medium	Small
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

MOOSE HUNTING REGULATIONS IN THE WESTERN REGION, 1930 - 1953.

by
A. T. Cringan

Increasing attention to moose management in northwestern Ontario has led to a partial compilation of the history of moose hunting regulations affecting the western region. Data included in this report were taken from old copies of the Game and Fisheries Act available in the Fish and Wildlife Division Library, Maple, and in Dr. C. H. D. Clarke's personal library. Information for the years 1930 - 1942, 1944, and 1946 - 1953 was collected in this way.

Open Seasons

The western region is divisible into five parts, each of which experienced a different moose hunting regulation history up until 1953. These are:

A. Those parts of the Kenora and Thunder Bay Judiciary Districts lying north of the northernmost transcontinental line of the Canadian National Railways.

B. That part of the Kenora Judiciary District lying south of the northernmost transcontinental line of the C.N.R. and north of the Superior Junction -- Fort William branch line of the C.N.R.

C. That part of the Kenora Judiciary District lying south of the northernmost transcontinental line of the C.N.R. and south of the Superior Junction -- Fort William branch line.

D. That part of the Thunder Bay Judiciary District lying south of the northernmost transcontinental line of the C.N.R.

E. The Rainy River Judiciary District.

Open moose seasons for these areas are tabulated in Table I.

Resident and Non-resident Moose Seasons

Up until 1950, resident and non-resident seasons were the same. In 1951 and 1952, moose hunting was open to residents only. In 1953, the October 1 - 15 season in Area A was open to non-residents as well as residents, while the rest of the seasons were open to residents only.

Protection of Antlerless Moose

Female moose and moose calves were protected by law at least from 1930 until 1952. The November 26 - December 24, 1953 seasons in Areas A, B, and C were open

to the shooting of any moose. Other 1953 seasons were open to the shooting of bull moose only.

Shipping Coupons and Seals

Shipping coupons were in use from 1930 to 1947, and metal seals from 1948 to 1953.

TABLE I -- Western Region Moose Seasons, 1930-1953.

S = September
O = October
N = November
D = December

Portion of Region

Year	A	B	C	D	E
1930	S 15-N 25	O 20-N 25	O 20-N 25	O 20-N 25	O 20-N 25
1931	S 15-N 25	O 20-N 25	O 20-N 25	O 20-N 25	O 20-N 25
1932	S 15-N 25	O 20-N 25	O 20-N 25	O 20-N 25	O 20-N 25
1933	S 15-N 25	O 20-N 25	O 20-N 25	O 20-N 25	O 20-N 25
1934	S 15-N 25	O 20-N 25	O 20-N 25	O 20-N 25	O 20-N 25
1935	S 15-N 25	O 25-N 25	O 25-N 25	O 25-N 25	O 25-N 25
1936	S 15-N 25	O 15-N 25	O 15-N 25	O 15-N 25	O 15-N 25
1937	S 15-N 25	O 15-N 25	O 15-N 25	O 15-N 25	O 15-N 25
1938	S 15-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1939	S 15-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1940	S 15-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1941	S 15-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1942	S 15-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1943	?	?	?	?	?
1944	S 15-N 25	Closed	Closed	O 15-N 25	Closed
1945	?	?	?	?	?
1946	S 20-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1947	O 1-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1948	O 1-N 25	O 15-N 25	Closed	O 15-N 25	Closed
1949	Closed	Closed	Closed	Closed	Closed
1950	Closed	Closed	Closed	Closed	Closed
1951	N 15-D 15	Closed	Closed	Closed	Closed
1952	N 26-D 24	N 26-D 24	N 26-D 24	Closed	Closed
1953	O 1-15 & N 26-D 24	N 26-D 24	N 26-D 24	N 20-D 15	Closed

Duration of Season

Total number of days of moose hunting permitted each year in each section of the region are given in Table II.

TABLE II -- Lengths of Western Region Moose Seasons.

Year	Portion of Region A	B	C	D	E
1930	72 days	37 days	37 days	37 days	37 days
1931	72 days	37 days	37 days	37 days	37 days
1932	72 days	37 days	37 days	37 days	37 days
1933	72 days	37 days	37 days	37 days	37 days
1934	72 days	37 days	37 days	37 days	37 days
1935	72 days	37 days	32 days	32 days	32 days
1936	72 days	42 days	42 days	42 days	42 days
1937	72 days	42 days	42 days	42 days	42 days
1938	72 days	42 days	Closed	42 days	Closed
1939	72 days	42 days	Closed	42 days	Closed
1940	72 days	42 days	Closed	42 days	Closed
1941	72 days	42 days	Closed	42 days	Closed
1942	72 days	42 days	Closed	42 days	Closed
1943	?	?	?	?	?
1944	72 days	Closed	Closed	42 days	Closed
1945	?	?	?	?	?
1946	67 days	42 days	Closed	25 days	Closed
1947	56 days	42 days	Closed	42 days	Closed
1948	56 days	42 days	Closed	42 days	Closed
1949	Closed	Closed	Closed	Closed	Closed
1950	Closed	Closed	Closed	Closed	Closed
1951	31 days	Closed	Closed	Closed	Closed
1952	29 days	29 days	29 days	Closed	Closed
1953	44 days	29 days	29 days	26 days	Closed

Licence Fees

There has been a gradual change in licencing procedures and licence fees since 1930, as shown in Table III.

TABLE III -- Big Game Licences and Fees, 1930-1953.

Year	Kind of Licence: Resident Deer	Resident Moose	Non-Resident Small Game	Non-Resident Big Game	Non-Resident Deer Small Game	Non-Resident Moose, Deer, Small Game
1930	$4.00	$6.00	$21.00	$41.00		
1931	$4.00	$6.00	$21.00	$41.00		
1932	$4.00	$6.00	$21.00	$41.00		
1933	$4.00	$6.00	$21.00	$41.00		
1934	$4.00	$6.00	$15.50		$25.75	$41.00
1935	$4.00	$6.00	$15.50		$25.75	$41.00
1936	$4.00	$6.00	$15.50		$25.75	$41.00
1937	$4.00	$6.00	$15.50		$25.75	$41.00
1938	$4.00	$6.00	$15.50		$25.75	$41.00
1939	$4.00	$6.00	$15.50		$25.75	$41.00
1940	$4.00	$6.00	$15.50		$25.75	$41.00
1941	$4.00	$6.00	$15.50		$25.75	$41.00
1942	$4.00	$6.00	?		?	?
1943	$4.00	$6.00	?		?	?
1944	$4.00	$6.00	$15.50		$25.75	$41.00
1945	?	?	?		?	?
1946	?	?	?		?	?
1947	$4.00	$6.00	$15.50		$25.75	$75.00
1948	$4.00	$6.00	$15.50		$25.75	$75.00
1949	$4.00	$6.00	$15.50		$25.75	$75.00
1950	$4.00	$6.00	$15.50		$25.75	$75.00
1951	$4.00	$6.00	$15.50		$25.75	$75.00
1952	$5.00	$10.00	$21.00		$36.00	$101.00
1953	$5.00	$10.00	$21.00		$36.00	$101.00

Moose Production, 1930-53.

No satisfactory yearly kill estimates are available for this entire period. Fair estimates of total kill are available for the years 1951-53. J. Fraser, District Biologist, Kenora, has obtained a record of Canadian-killed moose declared by U. S. hunters to U. S. A. Customs authorities at International Falls, as follows:

1941 - 279 moose exported
1942 - 203 moose exported
1943 - 57 moose exported
1944 - 54 moose exported
1945 - 184 moose exported
1946 - 194 moose exported
1947 - 294 moose exported
1948 - 311 moose exported
1949 -
1950 -
1951 -
1952 -
1953 - 249 moose exported

Comment

I have assembled this information to the best of my ability, hoping that in making it available to moose workers in the western region, we will be able to better interpret certain things that are happening and have happened within our moose populations. By going back to 1930, I'm confident that all seasons directly affecting moose which are still alive have been considered.

This information, in combination with results from an age determination technique now becoming available, should permit us to study such vital problems as the survival of a given year-class of moose through a known succession of open seasons.

WATERFOWL TAKEN IN MUSKRAT TRAPS, RIDEAU DISTRICT, 1954

by
N. D. Patrick

Tabulated data of waterfowl taken in muskrat traps in Rideau District are presented.

Please note that the final column includes all waterfowl reported, even when species were not indicated.

Column "other" includes species reported but not listed, i.e., bluebills, whistlers.

It is of interest to note that the total reported is double that of last year (1562 compared with approximately 750).

A total of five banded birds was reported mostly from Leeds County, presumably birds from Perch Lake, but confirmation from Ottawa has not yet been received.

Summary of Waterfowl Taken Accidentally In Muskrat Traps, Rideau District, 1954.

Licensed Trappers

Area	Officer	No. of Returns	No. of Rats Reported	Black	Mallard	Wood	Teal	Merganser	Other	Tota
1	Munro	68	3,815	29	-	16	9	-	10	6
2	Belanger	25	957	16	3	66	1	-	-	3
3	Headlam	30	1,928	3	-	-	5	1	-	1
4	Summerfeldt	56	3,889	3	6	7	2	-	-	3
5	Robinson	46	2,994	31	-	12	3	-	2	5
6	Knapp	27	1,745	11	-	8	6	2	-	2
** 7	Richardson	91	4,876	79	13	55	-	6	6	17
8	Thompson	132	10,235	80	2	130	2	8	1	35
9	Brooks	147	11,853	134	13	79	13	26	26	34
TOTAL		622	42,292	386	37	313	41	43	45	1,10

* One trapper reported catching a Hungarian partridge.

** This report contains both licensed and farmer trappers.

Summary of Waterfowl Taken Accidentally In Muskrat Traps, Rideau District, 1954.

Farmer Trappers

Area	Officer	No. of Returns	No. of Rats Reported	Black	Mallard	Wood	Teal	Merganser	Other	Total
1	Munro	21	370	-	-	2	-	-	-	-
2	Belanger	12	215	-	-	-	-	-	-	-
3	Headlam	8	102	-	-	-	-	-	-	-
4	Summerfeldt	16	232	1	-	-	-	-	-	1
5	Robinson	16	384	-	1	-	-	-	-	1
6	Knapp	6	569	4	2	1	-	-	-	7
7	Richardson	-	-	-	-	-	-	-	-	-
8	Thompson	34	1,908	13	-	22	-	-	-	60
9	Brooks	66	1,679	25	2	16	2	1	-	69
TOTAL		179	5,459	43	5	41	2	1	-	

District Total: Throughout the district, 801 trappers reported a catch of 47,751 muskrats and an accidental catch of 1,245 waterfowl of which 429 were blacks, 42 mallards, 354 were woods, 43 were teal and 44 were mergansers.

This gives a rough estimate of the total waterfowl loss at $\frac{61279}{47751} \times 1245 = 1562$

HELICOPTER USE ON WATERFOWL SURVEYS

by
H. G. Lumsden

On August 13th, a flight was made from Tweed in one of the contract helicopters over the east central part of Tweed District. The purpose of the flight was to check beaver ponds for beaver food conditions and to test the use of a helicopter for checking duck broods in forested country.

The best time for checking duck broods would be in late June or early July but the machine was not available then. This check done in mid-August found nearly all broods flying and many dispersed. The 1954 breeding season was however very late and a few Ring-necked Duck broods were found which were still unable to fly.

Although this check cannot give any indication of production on beaver pond habitats it seems worth putting on record the behaviour of the ducks when approached by a helicopter.

The following gives the number of ducks seen and a description of their behaviour on 10 beaver ponds, a marsh and a lake.

Pond No. 1 - 5 Miles West of Northbrook

1 Wood Duck took flight. Brood 10 Mallards, full grown, paid no attention to the helicopter when circled at 100 feet.

Pond No. 2 - 3 Miles West of Northbrook

4 Black Ducks took off singly for various parts of the pond and circled away from the machine. A brood of 5 Ring-necked Ducks, capable of flight, swam away from the helicopter as we circled, they did not attempt to get into vegetative cover although plenty was available. A brood of 3 Ring-necked Ducks, flightless, behaved as above but dived for short periods when approached closely.

Pond No. 3 - 2 Miles West of Northbrook

4 Black Ducks, 3 Blue-winged Teal and 1 Wood Duck took off singly when helicopter approached within 200 yards.

Pond No. 4 - 5 Miles East of No. 41 Highway

2 Ring-necked Ducks, about three quarters grown dived repeatedly as the machine circled at about 150 feet.

Pond No. 5 - 15 Miles East of No. 41 Highway

9 Ducks some Black, some Wood Duck, spattered along the surface among alders standing in the water. None tried to fly. They were easily seen and counted but were not easy to identify as to species.

Pond No. 6 - 3 Miles Northeast of Clarendon Lake

5 Black Ducks flew and 2 spattered over the surface when approached within 50 yards by the machine.

Pond No. 7 - 1 Mile South of Mosque Lake

5 Black Ducks remained on the surface as the machine passed about 100 yards away.

No ducks were seen on three new ponds containing much flooded timber in South Canonto Township.

The Dwyer's Marsh was checked at heights of 50 feet and lower, large numbers of snipe flushed at close range and 10 Black Ducks, 5 Wood Ducks, 3 Hooded Mergansers flew singly when approached. Two small flocks of 3 Ring-necked Ducks each, dived and eventually flew at the close approach of the machine.

Two Black Ducks sitting in the open among lily pads permitted a very close approach by the helicopter, they took off and flew a short distance when one settled again. This bird was approached a second time at very low altitude so that the slip stream from the motors splashed water over its back. Photographs were taken and when the range was checked on the camera it was found to read 10 metres.

A brood of three Ring-necked Ducks was seen on Summit Lake, they were about three quarters grown and dived while the machine was still about 150 yards away. They would not remain on the surface when the machine was within 50 yards.

The general impression gained from this check was that the ducks encountered were not particularly frightened of the helicopter and did not take wing as a rule until approached within 200 yards. Many did not

flush until the machine was very close and some of the full grown broods did not flush at all. It was noticed that the youngest Ring-necked Ducks seen were the ones most anxious to dive and escape.

Experience with a Piper Cruiser on the brood checks in Southern Tweed District indicates that ducks seem to be more alarmed by conventional aircraft than by the helicopter. This may be because of the shape of the machine and the possible resemblance to predatory birds. (Lorenz and Tinbergen described some experiments with Grey-lag Geese in 1938 using cutouts of various shapes to release escape behaviour in their subjects). The helicopter's shape may not release escape patterns in ducks but the noise and perhaps other factors may operate at close range to cause flight reactions.

It has been shown that escape behaviour varies in intensity at different ages in many kinds of birds. It may be that Black Duck broods will seek cover and exhibit extreme escape behaviour at six to eight weeks of age when production checks should be done. However, we will not know if this is so until we try.

No technique has yet been devised that has proved satisfactory for checking waterfowl production in forested country. The flight described above gave encouraging results and it may be that the use of a helicopter is the answer to this problem.

1954 SUMMER WATERFOWL OBSERVATIONS,

PERRAULT FALLS AREA, SIOUX LOOKOUT DISTRICT.

by
A. T. Cringan, W. J. D. Stephen and J. Elbrink

A field party engaged in moose investigations worked in the Perrault Falls area from July 7th to August 7th, 1954. All waterfowl observations made during this survey were recorded, and these form the basis of this report. Observations cover a total of 32 days.

Two students, D. Stephen and J. Elbrink, were present throughout the survey. Dr. deVos participated July 7-9; A. Cringan July 7-9, 12-14, 16-18, 26-28, and August 4-7; and R. Shuttlewood was present from July 7-28.

Work was largely confined to the 1,000 square mile Cedar River drainage basin. A few lakes and rivers were revisited several times, some others travelled once, but most of the waters of the basin were not travelled at all. It would be extremely difficult to extrapolate accurately so as to estimate the overall waterfowl resources of the drainage basin.

Total mileage covered was about 610 miles, consisting of 450 miles (mostly travelled just once) along lakeshores, and 160 miles (travelled twice in one day, but mostly covered on several different days) of stream travel.

Mallard

The mallard is the third commonest summer duck of the Perrault Falls area, being somewhat less common than the common merganser, and considerably less common than the common goldeneye. Between one and three adult mallards were seen daily on 14/32 days afield, and six different broods of 2-8 young were seen. No adult males in winter plumage were seen.

Mallard Brood Observations

	Class of, and number of Ducklings in each brood observed			Total No. of Young	Total No. of Broods	Average Brood Size
	I	II	III			
July 7-10, 1954		7,2		9	2	4.5
July 11-17, 1954						
July 18-24, 1954			7,2	9	2	4.5
July 25-31, 1954						
Aug. 1- 7, 1954		4	8	12	2	6.0
Total Number of Ducklings		13	17	30		
Total Number of Broods		3	3		6	
Average Brood Size		4.3	5.7			5.0

Adult mallards were observed generally in all parts of the area inspected, irrespective of habitat, and relatively more broods were seen along marshy rivers than elsewhere.

Black Duck

The black duck is decidedly less common than the mallard in the Perrault Falls area, but is still the second commonest pond duck. One or two adults were seen on five different days, yet no broods were observed. This area is undoubtedly close to the western edge of black duck breeding range for this latitude, which would account for the relative scarcity of the species.

All of the black ducks seen, except one, were along rivers.

Baldpate

Adult baldpates, from one to three in number were identified on three occasions. A brood of ducks, probably though not definitely of this species, was seen at Florence Creek in mid-July. An adult male in breeding plumage was seen at Florence Creek on July 9th. All baldpates were observed along marshy streams.

There can be little doubt that the baldpate nests in this area, which would constitute an extension to the generally published breeding range of the species.

Blue-winged Teal

An adult female blue-winged teal accompanying a brood of three Class II ducklings was seen along Ord Creek on July 19th. This location is at the northern edge of the generally accepted breeding range of the species.

Ring-necked Duck

An adult ring-necked duck was seen on Ord Creek on July 13th., and a group of eight adults on Halvorsen Creek on July 28th. Both observations were made in marshy habitats.

Common Golden-eye

The golden-eye is by far the commonest nesting duck in the Perrault Falls area, and is probably more abundant than all other species of ducks combined. It was recorded on 26/32 days in the field, and as many as 37 adults were seen in one day.

A total of 301 adult birds, not with broods, was recorded, between one and 36 daily on 23 different days. We were unable to classify these birds as to sex, as the summer moult had already taken place by July 7th.

Adult females accompanying broods totalled 73, from one to nine daily on 24 different days. Actually, 95 broods, including repeats on different days, were observed, and as many as ten broods were seen in one day. Up until July 24th, each of 36 broods seen was accompanied by an adult female but from then until August 7th, only 37/59 broods observed were accompanied by the females at the time of observation.

All but two of the 95 broods seen were probably single broods, in that they consisted of 10 or fewer ducklings. The other two broods, of 18 and 25 large Class III ducklings respectively were seen on August 6th, and each appeared to be composed of ducklings from two or more broods.

Nesting golden-eyes appeared to be most abundant along the Halvorsen, Cedar and English Rivers, and Ord Creek. Largest numbers of flocking adults were seen in Wabaskang Lake and along the Cedar River. They were scarcest around Cedar and Cliff Lakes.

Adult Golden-eye Observations

Week Of	Adults Not With Broods		Adults With Broods		Total Adults Seen	
	Per Week	Per Day	Per Week	Per Day	Per Week	Per Day
July 7-10, 1954	28	7.0	10	2.5	38	9.5
July 11-17, 1954	84	12.0	17	2.4	101	14.4
July 18-24, 1954	6	0.9	9	1.3	15	2.1
July 25-31, 1954	93	13.3	15	2.1	108	15.4
Aug. 1- 7, 1954	90	12.9	22	3.1	112	16.0
Total	301	9.4	73	2.3	374	11.7

The few golden-eyes seen daily during the week of July 18th - 24th are indicative only of the poor habitat encountered that week.

Golden-eye Brood Observations

Week Of	Class of and number of ducklings in each brood observed. I	II	III	Total No.of Ducklings	Total No. of Broods	Average Brood Size
July 7-10, 1954	3,3,3	10,5,3,5,7,2,	10	51	10	5.1
July 11-17, 1954	8,7	7,1,1,7,2,3, 10,3,5,6,1,3, 8,4,7		83	17	4.9
July 18-24, 1954		9,7,1,5,4,9	2,2,7	46	9	5.1
July 25-31, 1954		1,8,5,2,2,4, 4,6	4,3,1,1,1, 10,6,6,4,3, 9,5,2,7,2, 7,7,	110	25	4.4
Aug. 1- 7, 1954		2,4,4	4,8,3,4,1,3, 5,1,2,2,3,2, 2,2,1,5,3,2, 1,1,3,5,9,5, 5,1,1,2,6, (18,25)*	102 (145)*	32 (34)*	3.2 (4.3)*
Total No. of Ducklings	24	177	191 (234)*	392 (435)*		
Total No. of Broods	5	38	50 (52)*	93 (95)*		
Average Brood Size	4.8	4.7	3.8 (4.5)*			4.2 (4.6)*

* including observations of multiple broods.

If the two multiple broods are left out, there is apparently a reduction in mean brood size from around 5.0 during the first three weeks of July to below 4.0 by the first week of August. The majority of broods belonged to Class II during the first three weeks of July, and to Class III thereafter. It is probable that the average brood surviving to flying stage in this area in 1954 would be around 3.0.

Hooded Merganser

From one to four adult hooded mergansers were seen daily on 10/32 days in the field. All but one were seen along creeks and rivers. In addition three or four broods were seen, in three different places. In view of the diving abilities of this species, it seems likely that any or all of the brood counts may be incomplete.

Hooded Merganser Brood Observations

July 8th - adult female and 1 Class II duckling, Ord Creek
July 10th - adult female and 3 Class II duckling, Pickerel Creek
July 17th - adult female and 1 Class II duckling, Ord Creek
July 19th - adult female and 3 Class II duckling, Ord Creek
July 29th - adult female and 2 Class III duckling, Cedar Creek

American Merganser

As already noted, this species is commoner than the mallard, but decidedly less common than the golden-eye. It was recorded on 14/32 days in the field, and as many as 23 adults were seen in one day.

A total of 88 adult birds without broods was recorded, between 1 and 23 daily on ten different days. These were not classifiable as to sex since the summer moult had already occurred.

Eight adult females accompanying broods were seen, one or two daily on seven different days. All broods seen were accompanied by adult females. A multiple brood of about 30 late Class II young was seen on Wabaskang Lake on August 4th.

Flocks of adults, as well as broods, were to be seen in fair numbers on lakes and along the larger rivers travelled, and the species was less frequently noted along smaller streams.

Adult Common Merganser Observations

Week Of	Adults Not With Broods		Adults With Broods		Total Adults Seen	
	Per Week	Per Day	Per Week	Per Day	Per Week	Per Day
July 7-10, 1954	36	9.0	2	0.5	38	9.5
July 11-17, 1954	12	1.7	2	0.3	14	2.0
July 18-24, 1954	2	0.3	1	0.1	3	0.4
July 25-31, 1954	38	5.4	1	0.1	39	5.6
Aug. 1- 7, 1954			2	0.3	2	0.3
	88	2.8	8	0.2	96	3.0

Common Merganser Brood Observations

	Class of and no. of ducklings in each brood observed.					
	Class I	Class II	Class III	Total No.of Duck-lings	Total No.of Broods	Average Brood Size
July 7-10, 1954		6,4		10	2	5.0
July 11-17, 1954		10,5		15	2	7.5
July 18-24, 1954		7		7	1	7.0
July 25-31, 1954		12		12	1	12.0
Aug. 1- 7, 1954		(30±)	7	7 (37)	1 (2)	7.0 (18.5)
Total No. of Ducklings		44(74)	7	51(88)		
Total No. of Broods		6(7)	1		7(8)	
Average Brood Size		7.3(10.6)	7.0			7.3(11.0)

Relative Abundance of Waterfowl Seen in the Perrault Falls Area During July and August, 1954.

Species	No. of Days Recorded	No. of Adults Seen	Adults Seen Per 100 Miles *	Per Cent of Total
1. Common Golden-eye	26/32	374	61	70%
2. Common Merganser	14/32	96	16	18%
3. Mallard	14/32	22	4	4%
4. Hooded Merganser	10/32	17	3	3%
5. Ring-necked Duck	2/32	9	1	2%
6. Black Duck	5/32	8	1	2%
7. Baldpate	3/32	5	1	1%
8. Blue-winged Teal	1/32	1	Tr.	Tr.
Total		532	87	100%

* Adults seen per 100 miles of lake and river travel; our data cannot be broken down to 100 miles of lake travel and 100 miles of river travel; relatively far more ducks were seen along rivers than lakes.

Relative Abundance of Waterfowl Broods and Ducklings Seen in the Perrault Falls Area, July and August, 1954.

Species	No. of Broods	Per Cent of Broods	No. of Duck-lings	Per Cent Duck-lings	Average Brood Size
1. Common Golden-eye	95	83%	392	75%	4.2 *
2. Common Merganser	8	7%	88	17%	7.3 *
3. Mallard	6	5%	30	6%	5.0
4. Hooded Merganser	5	4%	10	2%	2.0
5. Blue-winged Teal	1	1%	3	1%	3.0
Total	115	100%	523	101%	

* excluding observations of multiple broods.

Comment

We estimate our sampling at 10% - 15% of the waterfowl population of the 1000 square mile Cedar River drainage basin. We further estimate that about 25% of our observations of adult birds and broods were repeat observations.

On this basis, total population of all adult ducks would be $\left(\frac{100}{15}\text{ to }\frac{100}{10}\right) \times \left(\frac{3}{4} \times 532\right)$, or between 2,650 and 4,000 ducks. About 70% of these are golden-eyes, 18% common mergansers, and the balance are mainly mallards and hooded mergansers. The total population of adult ducks appears to be around three or four thousand ducks, or about two pairs per square mile of map area.

At the time of the survey, there appeared to be about as many ducklings as adult ducks in the study area, or around 3,000 - 4,000 ducklings. Golden-eye ducklings constituted 75% of the ducklings observed, common mergansers 17%, and mallards 6%. Actual production of golden-eye ducklings to the flying stage may therefore approach 3,000 for the entire drainage basin.

Management-wise, this cannot be regarded as an important duck-producing area at present. The fact that several good sporting ducks - mallard, baldpate, blue-winged teal and ring-necked duck do occur now offers encouragement, and it is well possible that in the future, intensive management in this area might become worthwhile. Quicker results could probably be obtained through golden-eye management than through management of the superior sporting ducks.

WATERFOWL BREEDING GROUND SURVEY,

TWEED DISTRICT, 1954

by
H. G. Lumsden

The transects used since 1950 for checking the status of breeding waterfowl in Tweed District were covered again in 1954. In order to obtain comparable figures the methods used were the same as in previous years.

The 1954 breeding season was late. An effort was made to carry out the checks at roughly the same phenological time as in previous years. The transects were accordingly covered about a week later than usual.

On July 18th the Madawaska and York Rivers and the northern part of the Conroy Marsh were covered by boat. On July 22nd the Little Mississippi and York Rivers and the southern part of the Conroy Marsh were checked.

The following tables give the results of these transects compared to those of 1952 and 1953.

Boat Check July 18th and 22nd, 1954

Species	Brood Classes						
	I			II		III	
	a	b	c	a	b	a	b
Ring-necked Duck	1	2	1	2	4	0	0
Golden-eye	0	0	0	0	2	1	3
Wood Duck	0	0	0	0	0	1	0
Hooded Merganser	0	0	0	0	0	1	0
Black	0	0	0	0	0	0	1

		Ring-necked Duck	Golden-eye	Wood Duck	Hooded Merganser
No. of Broods	1952	36	10	1	2
	1953	42	11	2	2
	1954	10	6	1	1
Total Young	1952	180	44	7	19
	1953	217	50	9	10
	1954	43	29	4	10
Average Brood Size	1952	5.0	4.4	7.0	9.5
	1953	5.2	4.5	4.5	5.0
	1954	4.3	5.8	4.0	10.0

When the waterfowl breeding stock check was carried out in the Conroy Marsh on May 20th, there were indications that the ring-necked duck stock was only about half of that of 1953. It will be seen that there was a 75% decrease in broods seen on the transects this year. Fluctuations in water levels may have had something to do with the poor reproductive success of this species this year. The Palmer Rapids Dam, which controls levels in the marsh, needed repairs this summer. Water levels were steadily reduced until May 28th when the work was completed and the logs replaced.

The following table gives the weekly levels recorded at the gauge near the dam.

May 7 - 5.34 ft.	June 4 - 4.28 ft.
May 14 - 4.84 ft.	June 11 - 4.67 ft.
May 21 - 4.23 ft.	June 18 - 4.73 ft.
May 28 - 3.14 ft.	June 25 - 4.40 ft.

It seems likely that some ring-necked duck nests were started during the low water period in late May and were flooded as the levels rose in June. This happened to many of the pied-billed grebes nests found in the marsh by Mr. Merriam this year.

The aerial check of the marshes in the southern part of Tweed District which lies on the limestone rock formations was done on July 21, 1954.

The following table gives the results compared with those of 1952 and 1953.

Aerial Check July 21st, 1954

Species	Brood Classes		
	I	II	III
Black Duck	0	7	13
Mallard	1	6	6
Blue-winged Teal		1	3
Wood Duck		1	2

		Black	Mallard	Blue-winged Teal	Wood Duck
No. of Broods	1952	12	5	2	2
	1953	21	9	3	4
	1954	20	13	4	3
Total Young	1952	78	27	22	7
	1953	113	60	23	12
	1954	95	68	27	14
Average Brood Size	1952	6.5	5.4	11.0	3.5
	1953	5.4	6.6	7.7	3.0
	1954	4.8	5.2	6.8	4.7

Summary

In the southern part of Tweed District there was little change in status of breeding waterfowl this year. Forty broods of four species were seen on aerial transects which yielded thirty-seven in 1953.

In the Conroy Marsh area nineteen broods of five species were checked on boat transects which yielded fifty-seven broods in 1953. This great decrease was largely due to poor nesting success of a smaller breeding stock of ring-necked ducks.

NOTES ON THE NORTH SHORE OF LAKE SUPERIOR FROM MARATHON TO GARGANTUA HARBOUR AND ON MICHIPICOTEN ISLAND.

by
H. G. Cumming

Purpose of the Trip:

The trip was undertaken in order to make a preliminary survey of the streams of that area to find the potential spawning streams for Sea Lampreys.

Chronology:

May 7, 1954: We left Marathon and cruised to Playter Harbour and on to Dampier's Cove.

May 8, 1954: From Dampier's Cove, past White Gravel River to Simmon's Harbour.

May 9, 1954: From Simmon's Harbour past English Fishery to Trapper's Point Harbour, by the Swallow River.

May 10, 1954: Trapper's Harbour to Triangle Harbour, to Otter Harbour and on to Richardson's Harbour.

May 11, 1954: Richardson's Harbour past Puckasaw Village and the Puckaskwa River to Ganley Harbour.

May 12, 1954: From Ganley Harbour past Pilot Harbour and on to Dog Harbour.

May 13, 1954: From Dog Harbour to Michipicoten Harbour and on to Brute Harbour.

May 14, 1954: Brute Harbour to Indian Harbour and on to Gargantua Harbour.

May 15, 1954: Stayed at Gargantua Harbour.

May 16, 1954: Due to heavy fog had to stay another day at Gargantua Harbour.

May 17, 1954: Left Gargantua Harbour and went to Quebec Harbour on Michipicoten Is.

May 18, 1954: Around the west end of Michipicoten Island and across to Richardson's Harbour.

May 19, 1954: Returned from Richardson's Harbour to Marathon.

Description of the Country:

After leaving the granite hills of the Marathon Peninsula we found the shoreline to be made up of high sand cliffs for a few miles. This was soon replaced by granite hills and mountains and these continued unbroken until a short distance from the Puckasaw River. Around the Puckasaw River and Point Isacor, from Michipicoten Harbour to Gargantua and on Michipicoten Island, the mineral classification is "intrusive rocks, sedimentary rocks and volcanic rocks." Some of these areas were lower than the granite hills, while others like Brule Harbour and Michipicoten Island were just as high.

Along the entire shoreline there were many excellent natural small boat harbours. Many streams emptied into Lake Superior, some of them coming from the mountains to make beautiful waterfalls. The entire shoreline was one of rugged beauty.

Flora of the Area:

Walking inland north of Dampier's Cove, we found fairly extensive jackpine sand flats. Under the Jackpine, Lycopodium was found bearing fruiting bodies. Cornus canadensis was showing, but not in flower. The hills from there to Michipicoten Harbour were more or less heavily wooded with white spruce, jackpine, white birch and poplar. The valleys contained black spruce and poplar. A few scattered red and white pines were noticed for the first time around Simmon's Harbour. From Michipicoten Harbour southward we began to notice a higher percentage of hardwoods along the shores. Some of these were leafed out enough to show a definite greenish tinge.

On the south side of Michipicoten Island there was a hard maple grove. Ground hemlock covered large areas and dogtooth violet and hepaticas were in flower. The north side of the island appeared to be much like the shore of the mainland north of Michipicoten Harbour with evergreens predominating.

Fauna of the Area:

Fish Fish seen by our party were rainbow trout, lake trout, whitefish, chub and suckers. Although speckled trout are known to be present in many of the streams, none were seen on this trip. No lampreys were seen, but fish caught by the fishing boats at Michipicoten Island bore lamprey marks.

Mammals Mammals seen were 3 beaver, 2 red squirrels, (still in winter pelage) and at least 3 chipmunks. It was interesting to note that all the chipmunks were the eastern variety of Eutamias minimus. Tracks indicated the presence of the following mammals: moose, deer, timber wolves, foxes, weasels and mice. The presence of caribou and groundhogs was reported by a trapper. Porcupines and snowshoe hares left their signs on gnawed trees and shrubs. Undoubtedly other mammals were present but we were not fortunate enough to detect them. A prospector who had trapped inland from Puckasaw Village twenty years ago claimed that there were more beaver on one creek now than on a 100-mile circle then.

Birds The birds seen are recorded in the following table in order of observation.

Bird	Comments
Common Loon	Common all along the shore.
Hermit Thrush	Very common.
Golden-eye	Very few seen after the first day of the trip.
American Merganser	Pairs seen here and there along the shore.
Old Squaw	Abundant. Seen singly and in flocks up to 50. A total of 132 was recorded, for the first seven days, after that no count was kept.
Scaup	4 pairs seen.
Marsh Hawk	5 were seen on the trip, 4 of these were the brown phase and 1 grey.
Kingfisher	Common along the shore.
Buffle-head	4 in Dampier's Cove.
Red-tailed Hawk	2 in Dampier's Cove.
Mallard	A flock in Dampier's Cove.
Black-capped Chickadee	Common.
White-throated Sparrow	Abundant.
Yellow-shafted Flicker	Common.
American Scoter	2 in Dampier's Cove, 5 more past Trapper's Point.
Canada Goose	19 passed over Dampier's Cove.
Song Sparrow	Still quite scarce, only a few heard or seen.
Myrtle Warbler	Abundant.
Bald Eagle	2 by White Gravel River. One at Richardson's Harbour; one by Devil Island.
Horned Grebe	1 at Simmons Harbour; 1 at Richardson's Harbour.

Junco	Abundant.
Great Blue Heron	Common.
Brown-capped Chickadee	One seen at Trapper's Harbour.
Tree Swallow	Several seen.
White-crowned Sparrow	One at Trapper's Harbour.
Red-breasted Merganser	Several seen.
Tree Sparrow	Very common.
Ruby-crowned Kinglet	Abundant.
Rusty Blackbird	Common.
Brown Creeper	One at Trapper's Harbour.
Ruffed Grouse	Common. Two heard drumming on May 8th and 11th. Of the three seen, one was grey, and two brown.
Herring Gull	Abundant.
Double-crested Cormorant	5 seen flying south of Simmon's Harbour identification not positive.
Red-breasted Nuthatch	Common.
Willet	Several along shore, not positively identified because of distance.
Yellow-throated Vireo	Several heard, but the song was slightly unusual and positive identification by sight was never accomplished.
Green-winged Teal	3 male and 2 female seen at Dog Harbour.
Hairy Woodpecker	1 seen at Brule Harbour.
Downy Woodpecker	Several seen.
Western Palm Warbler	At Indian Harbour.
Pine Siskin	Common.
Sharp-shinned Hawk	One at Gargantua Harbour.
Chipping Sparrow	A flock at Gargantua Harbour.
Phoebe	Three at Gargantua Harbour.
Evening Grosbeak	About 8 at Gargantua Harbour.
Spotted Sandpiper	One at Gargantua Harbour.
Robin	Common.
Cowbird	2 males and 1 female at Gargantua Harbour.
Vesper Sparrow	Several seen, especially at Gargantua Harbour.
Clay-colored sparrow	One seen at Gargantua Harbour.
Savannah Sparrow	One seen at Gargantua Harbour.
Field Sparrow	On Michipicoten Island.

A very heavy snowfall was felt through this entire area on May 2, 3, 4th and 5th. Both of the trappers interviewed mentioned that it was very hard on the small birds, and that they had put out oatmeal. One of them reported that "scores" of birds floated down the Swallow River after the storm. He said that he fed the birds 20 pounds of oatmeal as well as other left-overs. This statement was

supported by the presence of about 50 small birds in the clearing around his cabin. During May 7th, 8th and 9th we saw about six small dead birds, untouched by predators. We also saw around 20 or 30 small birds that had been eaten, most of them by hawks.

This is some indication of the severity of the storm. The chances of finding a small bird of that size in the woods are so small that the number killed must have been extremely large. All of the birds seen were tree sparrows, slate-colored juncos or hermit thrushes.

Other Animals:

Spring peepers were first heard at Brule Harbour on May 13th, 1954.

Michipicoten Island presents an unusual situation. Local fishermen report that there are no game birds on the island. The only mammals are snowshoe hares, foxes, weasels and beaver, and although not mentioned it is expected that small mammals are also present. They reported that the population of foxes is quite high. Snowshoe hares are abundant. In one area showing heavy winter browse an average of 26 pellets per square yard were counted on ten 20 inch square sample plots picked at random within the area of heaviest browsing. This would give a population estimate of about 3,000 per square mile (Wing) ..... (Wing states that eight pellets per square yard indicates 1,000 hares per square mile). This was only in the heaviest concentration and the population of the whole area would be considerably lower.

A track from one of the introduced deer was also seen.

Summary:

1. Most of the streams along the north shore of Lake Superior from Marathon to Gargantua Harbour and one on Michipicoten Island were examined and notes made to assist in future lamprey control work.

2. Notes made on the physical features and life of that section are included in this report.

COMMERCIAL FISHING IN ONTARIO

by
G. C. Armstrong

Commercial fishing is the legalized harvesting of fish for sale. Fishermen with the authority of a license are permitted to crop a limited amount of certain species from designated public waters for the purpose of sale.

The commercial fishing of Ontario waters is a valuable self-sustaining industry. It is one of the largest renewable resources of the Province and, therefore, worthy of the best possible usage in the interests of those concerned -- the general public.

A brief review of the industry is described as follows:

Commercial Species

The commercial species harvested from Ontario waters may be segregated into three main groups, namely, food fishes, coarse fishes and minnows.

1. Food Fishes

The group known as food fishes include those fish which are in sufficient demand to be of significant economic importance to the industry. This group includes the lake trout, pickerel (blue and yellow), sauger, perch, pike, goldeye, whitefish, herring, tullibee, catfish, sturgeon, eel and carp.

2. Coarse Fishes

Coarse fish are those which are incidental as food fishes or are of minor seasonal importance. The group includes such species as smelt, chub, menominee, sheepshead, white bass and burbot.

3. Minnows

Minnows are harvested and sold as bait to anglers. This phase of commercial fishing is an important integral part of the industry which is fast developing into a sizeable business, particularly in southern and western Ontario. - Minnows can be used in waters from which they are taken or in waters where the species is already present.

Harvesting

The harvesting of fish from Ontario waters is performed by the use of nets and/or fishing lines. The nets which include the gill and impounding varieties are the principal gear used but lines, in the form of night or trolling lines, are operated seasonally in some sections of the Province. - See accompanying table.

The industry is for the most part limited to summer operations. A small winter fishery is conducted in the northern part of the Province but this production is relatively small.

Summer Fishing

The summer fishery commences shortly after the break-up and continues generally to freeze-up unless closed seasons are levied to protect a species during the spawning periods.

This operation may include the use of gill nets, pound nets, trap nets, seine nets, dip nets and roll nets, night lines or trolling lines. The fisherman may be licensed to fish one or more of these types of gear on his licensed ground.

The operation of this equipment is generally conducted from boats suited for the purpose. Tug boats, gasoline launches and row boats are in general use. The tug boat or gasoline launch is generally a necessity for gill net fishing and trolling, particularly in large waters, while the smaller craft of the row-boat size are essential in the operation of shallow water impounding gear or in smaller inland fisheries.

The number of men employed in these operations depends largely on the type and amount of gear handled. Large gill net outfits may employ five or more of a crew while trolling and night line fishermen may operate their license single handed.

The nets and lines may be examined daily or they may be allowed to fish for a period of five days or more, depending on the type of gear, the species of fish, and the waters in question. - Night lines and gill-nets may be fished from one to three days depending on the location of the waters and the temperature of the same while large impounding nets (pound nets) may be left for five days or more in the cooler waters of Lake Superior.

Fishing Gear Used in Commercial Fishing Industry in Ontario

Type of Gear	Method of Fishing	Degree of Usage	Type of Twine	Effective Range	Species Caught	Area Fished
Gill Net	Entanglement	Most Common	Cotton, Linen or Nylon	Unlimited	All Species	Entire Province
Pound Net	Impoundment	Common	Cotton	Shallow Water (up to 10 fathoms)	All Species	Entire Province, excepting L. Ontario and S. Inland Waters
Trap Net	Impoundment	Rare	Cotton	Unlimited	All Species	Lakes Erie & Huron and Georgian Bay
Hoop Net	Impoundment	Restricted Seasonal	Cotton	Shoreline Waters	Catfish, Pike & Coarse Fish	Lakes Ontario & Erie Georgian Bay & N. & S. Inland Waters.
Dip Net	Impoundment	Restricted Seasonal	Cotton	Shoreline Waters	Principally Coarse Fish	Lakes Ontario & Erie & N. & S. Inland Wate Waters.
Seine Net	Impoundment (corralling)	Restricted Seasonal	Cotton	Shoreline Waters	Pike & Coarse Fish	Lakes Ontario, Erie, St. Clair, Georgian Bay & S. Inland Waters.
Night Line	Hooking	Common	Principally Cotton	Unlimited	Principally Sturgeon, Eel, Catfish	Entire Province, excepting L. Superior & N. Channel.
Trolling	Hooking	Rare	Monel, Copper	Unlimited	L. Trout	Lakes Superior and Ontario.

Winter Fishing

Winter fishing in Ontario is a relatively small enterprise, however, it is practiced on a few northern inland lakes, many of which are inaccessible except to air travel.

The winter operation is advantageous in that it permits the cropping of fish from some of the smaller commercial waters which would be otherwise neglected. At this season the fishermen may operate on the ice and eliminate boat travel; retain his catch for a reasonable period of time; and may with little effort and suitable equipment (toboggan, snowmobile etc.) transport his catch to a rail centre.

Although winter fishing has advantages there are disadvantages too. The fishermen are restricted to the use of gill net which has to be operated under the ice surface (jigger). They are handicapped by reduced movement in the fish populations; severe weather conditions; and in some areas by extremely high transportation charges for air travel.

Marketing

Most of the fish harvested in Ontario are exported in a fresh state to the United States. The major part of these shipments are made to the New York market with lesser amounts going to Buffalo, Detroit, Chicago and Duluth.

The marketing of fish, generally, presents little or no difficulty to the Ontario fisherman. However, Whitefish species taken from some of the northern inland waters are infected with a cestode parasite Triaenophorus which reduces the value of these fish and, in a few instances prevents the sale of the product on open market.

Whitefish Inspection Act -- A Federal Government law which prohibits the export of Whitefish outside the Province unless the fish have been examined for quality and cleared by government inspection.

Management

Management of a fishery includes a consideration of:

1. Inventory -- Assessment of prevailing conditions.

   (a) Examination and evaluation of environment, -- lake survey.

(b) Examination of biological and ecological conditions - species of fish, population studies - growth studies - quality of fish - natural spawning grounds and food supply.

2. Potentialities

Review of all possibilities in view of the results and existing circumstances in an effort to improve or at least maintain the status of the fishery in the interest of all concerned.

3. Enactment of proposed programme

(a) Public relations - advising the public of the proposed use of their resource and soliciting their interest and support.

(b) Legislation or regulation required to initiate programme.

The term management is misused all too frequently in the fisheries field. The true purpose of fish management is to produce the greatest harvest of fish on a sustained yield basis and, therefore, such programmes should be instituted only after a scientific study in relation to the various local aspects of the fishery has been undertaken.

Administration

The administration office is the hub of any successful business. This office is the control room which guides, and directs the operation of the industry. - However, like any unit the strength of the hub is only as strong as its supporting structures and, consequently, it follows that good administration is dependent on sound factual information supplied from the field.

In this industry the license, the record and the regulation are tools of paramount importance to administration.

License -- The license permits the holder to fish, - the time, the gear, the species, the amount and the area of water is designated on this permit.

Records -- The record is the history of the operation - these files include an up-to-date record of the returns and should contain a complete account of all available information pertinent to the operation.

Legislation and Regulations -- Regulations are the authoritative control of the operation. Closed seasons, sanctuaries, size limits, inspections and all phases of control may be instituted through legislation and regulations.

A BIOLOGICAL SURVEY OF HILLY LAKE,

KENORA DISTRICT

by
P. F. Chidley

Purpose:

The purpose of this survey was to attempt to assess the condition and composition of the fish population present with a view to future management procedure.

Method:

The survey was conducted from September 6, 1950 to September 8, 1950. Depth soundings, temperature records, and Secchi disc records were made on July 28, 1950.

Fish samples were collected by means of gill nets of the following lengths and mesh size:

30 yards of 1 1/2" mesh (extension measure)
30 yards of 2 " mesh
30 yards of 2 1/2" mesh
30 yards of 2 3/4" mesh
30 yards of 3 " mesh
30 yards of 3 1/2" mesh
30 yards of 4 " mesh
30 yards of 4 1/4" mesh
30 yards of 4 1/2" mesh
30 yards of 5 " mesh
30 yards of 5 1/2" mesh

These nets were joined together to form one gang. The sets made are illustrated in Figure I.

Each fish captured was measured for fork length to the nearest eighth inch and weighed to the nearest half ounce. The sex of each was determined, the stomach content of the carnivorous species was analysed, and a scale sample for age determination taken.

Water temperature data were obtained with a Taylor maximum-minimum thermometer attached to a weighted line. The thermometer was then lowered to the desired depth.

A Secchi's disc was employed for water transparency recordings. A Mariner's plumb was used to obtain depth soundings. The nature of the lake bottom was determined by means of this device.

Physical Properties of Hilly Lake:

Hilly Lake lies in Jaffray Township, eight miles east of the town of Kenora immediately north of Trans-Canada Highway No. 17.

The lake has no permanent outlet or inlet. There is some seepage into the lake at the extreme south end in the spring.

An escarpment of perhaps 75 feet in height parallels both east and west shores rendering them quite steep.

Four reedy bays are in evidence. Here in mid-summer both emergent and submergent aquatic vegetation grows quite profusely.

The composition of the remainder of the shore-line is rock rubble with one small sand beach near the south end. Some topographic features of the lake are illustrated in Figure I.

The lake bottom is fairly regular and composed of soft mud in depths of greater than 15 - 20 feet. Where marsh prevails the mud bottom extends to the shore.

The water of Hilly Lake is brown in colour and fairly rich in suspended organic material. On July 28, 1950, in bright sunlight the Secchi's disc was invisible below a depth of 8 feet, 5 inches. The greatest depth recorded was six fathoms.

On July 28, 1950 the temperature of the surface water of Hilly Lake was 69°F. Bottom temperature (31 feet) was 60°F. A hydrographic map of Hilly Lake is presented as Figure II.

Biological Properties of Hilly Lake:

The samples of fish collected from Hilly Lake was not very satisfactory, for other than describing most of the species present.

Table I lists the total number and total weight of each species. Table II relates age in years to average fork length in inches and average weight in ounces. Stomach analyses appear in Table III. Hatchery plantings are presented in Table IV.

The Smallmouth Bass is probably the most important fish in Hilly Lake. Only one was captured during the survey, however, this is understandable as this species

is not gilled too easily. Bass were seen at various locations along the shore of the lake. Mr. Carl Jacobson, a part-time resident of the lake for a good number of years has stated in an interview that the bass is the commonest fish in the lake. The one bass captured was a female of eleven years. It measured 16 3/4 inches and weighed 3 1/2 pounds. It had been feeding on crayfish at the time of gilling. Spawning grounds for this species are plentiful.

The Yellow Pickerel and Northern Pike are probably not too plentiful. The former are very desirable from the standpoint of edibility and attain a good size in Hilly Lake. The growth rate of the Pike is fair. The principal diet of these two species appears to be Perch. It is not believed that Yellow Pickerel occurred in these waters prior to the initial planting in 1941.

Hilly Lake harbours a good population of Common Suckers although their numbers are possibly not out of line with a desirable balance.

Management Observations:

Hilly Lake is easily reached by motor car from Kenora and readily visible from the highway. It is believed, however, that fishing pressure is not great.

There are two commercial tourist outfitters' camps on the lake but they are small camps and do not depend too much upon Hilly Lake for their guests' angling.

Angling success has deteriorated over the past several years.

Conclusions and Recommendations:

Hilly Lake appears to be ideally suited for Smallmouth Bass and sufficient stock is present to assure successful propagation of this species in the future.

It is doubtful if the Yellow Pickerel will ever become a fish of major abundance in this lake, however, stocking with eyed pickerel eggs should do no harm.

On the findings of this survey it is therefore recommended:

1. That Hilly Lake be managed as a Bass Lake with the Yellow Pickerel of secondary importance.
2. That further planting of Bass be discontinued.
3. That Yellow Pickerel be planted when surplus stock is available.

TABLE I - Total Catch

Species	No.	Total Weight (ozs.)	Percent of Total Number	Percent of Total Weight
Yellow Pickerel	3	140.0	15.9	21.2
Northern Pike	5	112.0	26.3	17.2
Smallmouth Bass	1	54.0	5.2	8.1
Common Sucker	10	353.5	52.6	53.5
TOTAL No.	19	659.5		

TABLE II - Growth Rate

Table 2 (a) - Northern Pike

Age	Fork Length	Weight	Number
IV	17.5	21.5	4
VI	19.1	26.0	1

Table 2 (b) - Yellow Pickerel

Age	Fork Length	Weight	Number
VII	17.5	42.0	1
VIII	18.7	49.0	2

Table 2 (c) - Common Sucker

Age	Fork Length	Weight	Number
III	10.9	9.5	1
IV	14.6	26.3	2
V	15.3	34.4	4
VI	16.3	40.5	2
VIII	19.4	73.0	1

TABLE III - Stomach Analysis

Table 3 (a) - Northern Pike

Stomach Content	Number
Empty	4
Perch	1
Unidentifiable Fish Remains	1

Table 3 (b) - Yellow Pickerel

Stomach Content	Number
Empty	1
Perch	2

TABLE IV - Hatchery Plantings

Year Planted	Species Planted	Number Planted
1941	Yellow Pickerel	250,000
1942	Yellow Pickerel	250,000
1943	Yellow Pickerel	500,000
1944	Yellow Pickerel	500,000
1945	Yellow Pickerel	500,000
1946	Smallmouth Bass	100 Adults
1948	Smallmouth Bass	125 Adults
1949	Smallmouth Bass	100 Adults
1950	Yellow Pickerel	300,000
1951	Yellow Pickerel	500,000
1952	Yellow Pickerel	300,000

Figure I.

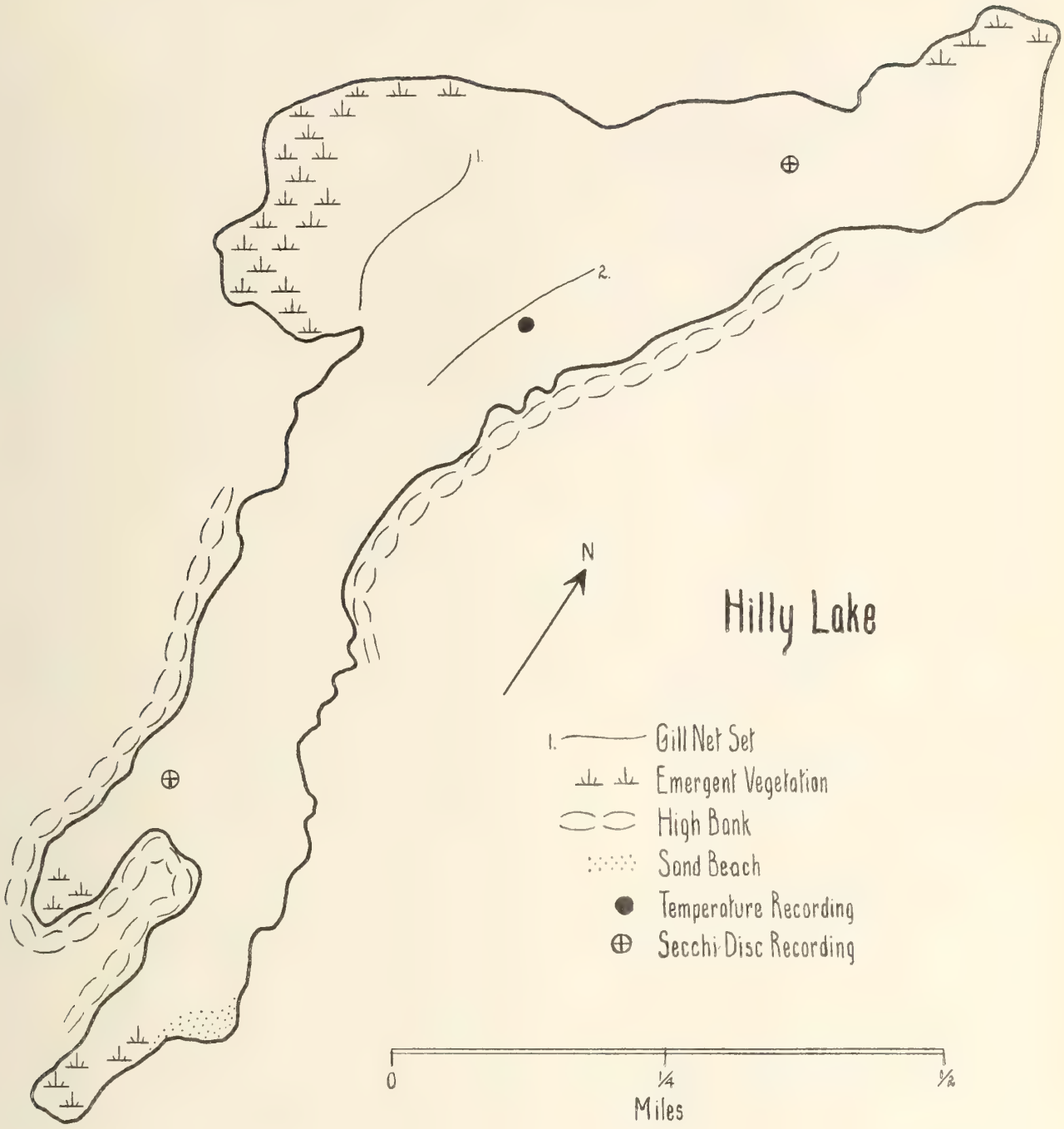
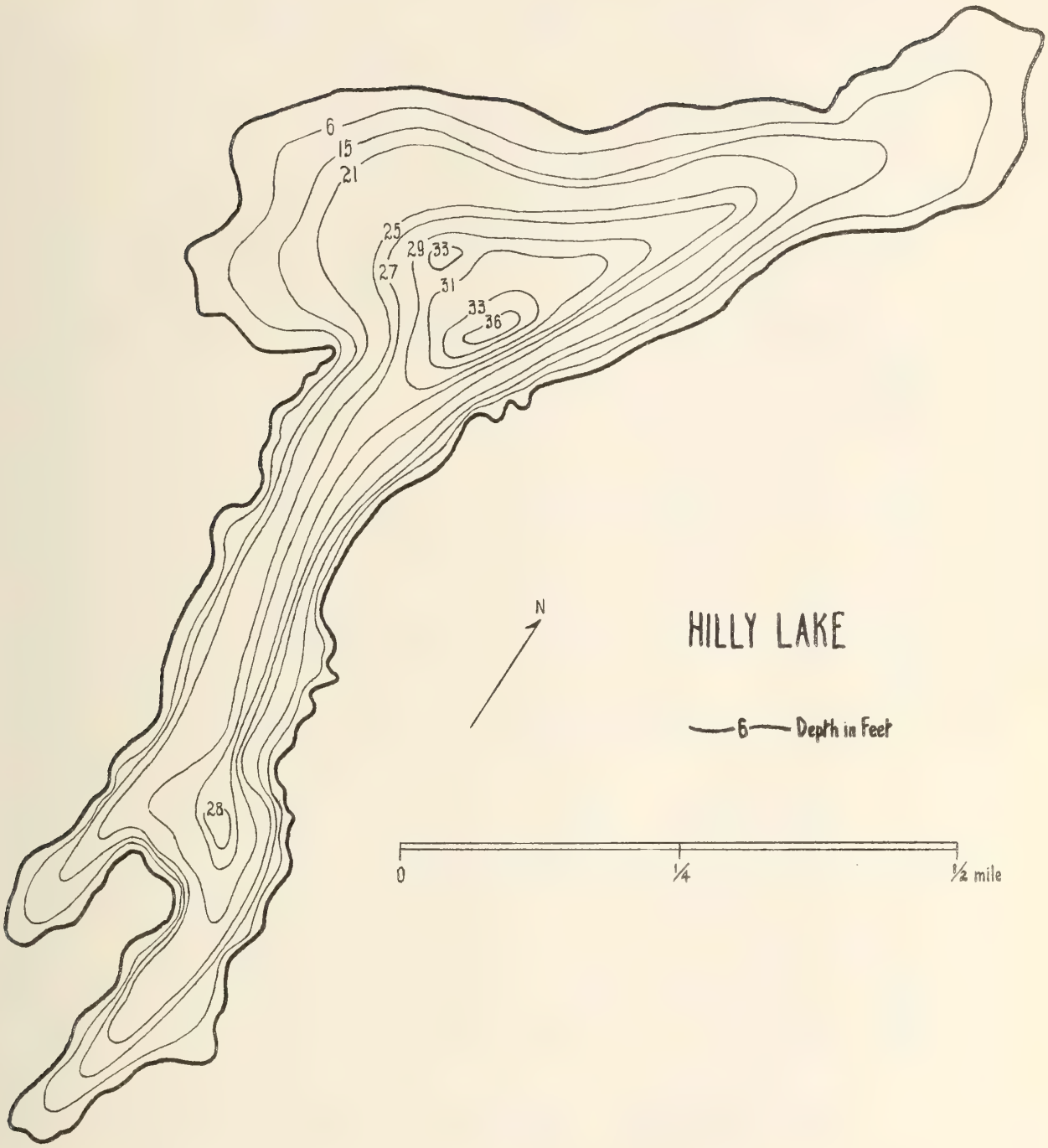

1.
2.
N
Hilly Lake
1. Gill Net Set
Emergent Vegetation
High Bank
Sand Beach
Temperature Recording
Secchi Disc Recording
0
¼
½
Miles

Figure II.


6
15
21
25
27
29
33
31
33
36
28
N
HILLY LAKE
6 Depth in Feet
0
¼
½ mile

SUMMARY OF FUR RETURNS BY ONTARIO GAME MANAGEMENT DISTRICTS

COMPILED FROM DISTRICT FORM G-224 FOR YEAR 1952-53

District:		No of Areas	No of Trprs	Rets Made	% Rets Missng	Beaver Quota	Fisher Quota	Mart Quota	Beaver Catch	Bob Cat	Fish	Arc Fox	Col Fox	Lynx	Mart	Mink	Muskrat	Otter	Racc	Skunk	Squir	Weasel	Wol Bru	Wol Tim	Wolv Bear
CHAPLEAU	RTA	160	144	129	10.5	8288	323	496	2696	1	163	1	49	15	263	646	2818	172	-	-	23	624	12	-	-
COCHRANE	RTA	68	71	70	0.0	2133	263	227	1366	-	113	-	78	37	117	285	2790	85	-	-	136	1297	-	-	-
"	RES	-	13	13	0.0	-	-	-	30	-	-	-	4	-	-	5	253	-	-	-	-	61	-	-	-
FORT FRANCES	RTA	125	124	112	9.7	6614	154	11	5518	43	82	-	35	2	5	1061	5937	73	-	-	787	812	8	12	-
"	RES	-	90	40	55.6	779	-	-	708	-	-	-	8	-	-	149	795	1	-	-	21	142	19	2	7
GERALDTON	RTA	124	125	114	8.8	3755	245	381	2515	-	71	-	36	24	252	535	2116	156	-	-	439	195	-	12	-
GOGAMA	RTA	120	100	88	12.0	3043	264	275	1934	-	124	2	52	4	224	474	2784	147	2	-	149	1018	-	6	6
KAPUSKASING	RTA	118	114	114	0.0	6642	352	694	4286	-	183	-	83	97	359	761	3287	175	-	-	383	1857	4	13	-
"	RES	-	25	25	0.0	193	-	-	128	-	-	-	2	5	1	20	193	3	-	-	20	75	-	-	-
KENORA	RTA	296	365	289	20.8	10680	262	-	6501	-	114	-	58	6	10	1374	18707	87	-	75	1465	1220	6	18	-
"	RES	-	19	19	0.0	285	-	-	178	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LAKE ERIE	RTA	54	54	54	0.0	-	-	-	-	-	-	-	-	-	-	31	81836	-	8	7	-	3	-	-	-
"	RES	-	1398	1360	2.7	5	-	-	4	-	-	-	238	-	-	410	108500	-	3990	2990	14	522	1	-	-
"	FAR	-	97	97	0.0	-	-	-	-	-	-	-	6	-	-	4	2445	-	132	27	-	11	-	-	-
LAKE HURON	RTA	59	87	84	3.5	-	-	-	-	-	-	-	58	-	-	45	4450	-	161	127	1	27	-	-	-
"	RES	-	1079	1069	1.0	-	-	-	-	-	-	-	897	-	-	999	59465	-	3075	2100	58	633	2	-	-
LAKE SIMCOE	RTA	24	24	24	0.0	270	-	-	208	-	-	-	4	-	-	21	1788	13	23	-	-	12	6	3	-
"	RES	-	496	493	0.6	170	-	-	102	-	-	-	402	-	-	517	36230	1	1161	178	148	254	8	-	-
"	FAR	-	15	11	26.7	6	-	-	2	-	-	-	27	-	-	-	154	-	-	-	7	-	-	-	-
LINDSAY	RTA	63	63	63	0.0	1452	68	26	1277	-	38	-	41	-	6	187	4719	31	39	-	7	64	-	13	1
"	RES	-	646	620	4.1	1878	-	-	1263	-	-	-	371	-	-	438	39445	18	430	96	34	150	7	1	2
NORTH BAY	RTA	167	164	153	6.8	2856	34	2	2127	-	21	-	58	5	-	857	6720	106	8	3	60	275	12	13	-
PARRY SOUND	RTA	129	128	114	11.0	2769	272	193	1948	-	152	-	44	2	62	557	5790	104	42	-	85	218	-	30	-
"	RES	-	300	249	17.0	875	-	-	610	-	-	-	96	-	-	573	9214	60	124	11	140	319	-	2	1
PATRICIA CENTRAL	RTA	277	824	701	15.0	33532	49	114	18393	-	10	5	281	305	50	6439	21200	2505	-	-	4265	1623	-	5	1
PATRICIA EAST	RTA	233	446	445	0.0	21711	308	556	11173	-	82	40	431	101	233	2068	16638	861	-	72	1042	1685	2	3	-
PATRICIA WEST	RTA	333	854	670	21.6	18513	481	35	11687	-	163	7	421	437	30	3786	37522	790	-	-	4878	2834	22	47	15
PEMBROKE	RTA	54	54	53	1.9	2321	244	81	2017	-	147	-	237	-	38	361	5524	92	16	-	32	175	-	37	-
"	RES	-	88	80	9.1	506	-	-	357	-	2	-	155	-	-	81	3213	14	6	-	39	81	-	2	-
"	FAR	-	8	8	0.0	-	-	-	-	-	-	-	-	-	-	-	179	-	-	-	-	-	-	-	-
PORT ARTHUR	RTA	238	262	257	7.9	9438	1101	490	6241	-	361	-	29	9	167	921	3097	143	-	1	766	2391	-	26	-
"	RES	-	9	9	0.0	-	-	-	47	-	-	-	-	-	-	1	28	-	-	-	-	28	-	-	-
RIDEAU	RES	-	1013	988	2.5	-	-	-	441	-	-	-	691	-	-	143	56353	4	342	21	111	269	7	-	-
"	FAR	-	574	538	6.3	-	-	-	-	-	-	-	166	-	-	8	10900	-	17	14	13	27	-	-	-
SAULT STE MARIE	RTA	273	265	259	2.3	9660	1035	190	3775	2	200	-	67	1	87	1153	4340	203	-	-	167	1084	5	41	-
"	RES	-	89	88	1.2	783	-	-	383	-	1	-	11	-	-	153	2991	6	-	2	26	223	37	44	-
SIOUX LOOKOUT	RTA	88	107	91	15.0	6616	312	276	3067	-	109	-	34	45	114	762	3170	96	-	-	-	1050	1	6	-
SUDBURY	RTA	219	215	192	10.7	9112	113	-	5736	-	60	-	58	17	-	1041	9839	158	18	2	122	362	15	66	-
SWASTIKA	RTA	147	157	146	7.1	3527	281	19	2008	-	74	-	66	22	8	487	3070	76	2	-	133	899	-	4	-
"	RES	-	7	7	0.0	62	-	-	20	-	-	-	-	-	-	-	93	-	-	-	-	9	-	-	-
"	FAR	-	5	5	0.0	-	-	-	-	-	2	-	4	-	-	20	112	-	-	-	-	69	-	16	-
TWEED	RTA	193	183	183	0.0	5387	-	181	3572	-	4	-	74	-	-	422	15149	51	73	1	34	85	-	3	8
"	RES	-	1162	1136	2.3	4595	-	-	2949	-	-	-	346	-	-	330	71786	34	205	22	201	183	11	1	1
"	FAR	-	145	145	0.0	-	-	-	-	-	-	-	9	-	-	28	4385	-	-	-	12	9	-	-	-
WHITE RIVER	RTA	155	124	120	3.3	9403	684	617	4009	-	137	-	58	36	194	751	1117	119	-	-	259	886	-	-	-
		3717	12332	11525		180647	6854	4870	109260	46	2414	54	5784	1170	2210	28904	671642	6410	9874	5749	16077	23727	187	426	255

RTA - Registered Trapline Areas.
RES - Resident Trapping Licenses.
FAR - Farmer Trappers.

RTA. Trappers 5054
RES. Trappers 6434
FAR. Trappers 844

Percentage of RTA Trappers Returns Missing 10.5
Percentage of RES Trappers Returns Missing 3.7
Percentage of FAR Trappers Returns Missing 4.8

66.5 Of Beaver Quota Caught.

SUMMARY OF FUR RETURNS BY ONTARIO GAME MANAGEMENT DISTRICTS

COMPILED FROM DISTRICTS FORM G-224 FOR YEAR 1953-54

DISTRICT		NO. OF AREAS	NO. OF TRPS	RETS MADE	% RETS MISS	BEAV QUO	FISH QUO	MAR QUO	BEAVER CATCH	BOB CAT	FISH	ARC FOX	COL FOX	LYNX	MART	MINK	MUSKRAT	OTT	RACC	SKUNK	SQUIR	WEAS	BRU WOLF	TIM WOLF	BEAR
CHAPLEAU	RTA	156	118	118	0.0	4612	466	676	2155	1	114	-	33	19	281	464	1640	137	-	-	32	563	-	-	-
COCHRANE	RTA	69	71	71	0.0	2368	317	306	1378	5	126	-	38	32	171	382	1705	64	-	-	190	1283	6	35	-
" P.E. POR.	RTA	32	54	54	0.0	2969	181	229	1500	-	32	-	18	32	162	264	758	63	-	-	426	670	-	11	-
"	RES	-	12	12	0.0	-	-	-	27	-	-	-	8	-	-	5	126	-	-	-	-	18	-	-	-
FORT FRANCES	RTA	123	121	106	12.4	8353	237	20	4635	-	95	-	11	-	13	777	3182	88	-	-	685	652	-	7	-
"	RES	-	115	38	67.0	-	-	-	522	8	-	-	-	-	-	103	884	3	-	-	-	84	-	-	-
GERALDTON	RTA	120	136	100	26.5	5861	401	678	1532	-	72	-	46	18	311	535	909	105	-	-	122	838	-	30	-
" P.C. POR.	RTA	31	69	60	13.1	3060	29	138	1843	-	3	-	94	106	41	751	2008	204	-	-	543	500	-	-	-
GOGAMA	RTA	138	130	126	3.1	3089	366	414	1708	-	135	-	33	6	216	510	1609	133	-	-	211	817	-	7	-
KAPUSKASING	RTA	114	109	70	35.8	6833	349	679	3771	-	175	-	-	65	678	808	1233	161	-	-	104	1366	-	-	-
" P.E. POR.	RTA	86	79	52	34.2	4963	160	317	3393	-	31	-	10	34	68	316	1277	61	-	-	296	8	-	-	-
"	RES	-	39	3	92.4	119	-	-	105	-	4	-	3	2	17	76	17	2	-	-	-	4	-	-	-
KENORA	RTA	282	339	170	49.9	12219	269	-	2957	10	92	-	41	9	1	687	7724	46	-	-	684	689	3	21	-
" P.W. POR.	RTA	77	146	76	47.9	4779	109	-	1980	2	-	5	23	9	-	202	5881	20	-	-	593	279	18	14	-
"	RES	-	16	16	0.0	-	-	-	54	-	-	-	-	-	-	17	827	3	-	-	35	41	3	21	-
LAKE ERIE	RTA	60	55	55	0.0	-	-	-	-	-	-	-	-	-	-	227	95892	-	52	2	-	5	-	-	-
"	RES	-	1064	1059	0.0	-	-	-	-	-	-	-	162	-	-	474	89020	-	2569	1098	12	292	5	-	-
"	FAR	-	-	113	-	-	-	-	-	-	-	-	21	-	-	36	2067	-	82	17	-	10	-	-	-
LAKE HURON	RTA	60	60	59	0.0	-	-	-	-	-	-	-	28	-	-	56	3466	-	139	30	12	10	4	1	-
"	RES	-	977	971	0.6	-	-	-	4	-	-	-	544	-	-	1164	51185	-	3636	1003	219	242	1	-	-
"	FAR	-	413	123	70.2	-	-	-	14	-	-	-	54	-	-	10	1438	-	138	7	-	9	-	-	-
LAKE SIMCOE	RTA	24	24	24	0.0	434	-	-	373	-	-	-	19	-	-	121	2065	20	59	-	45	10	8	-	-
"	RES	-	494	492	1.5	-	-	-	208	-	-	-	235	-	-	623	37985	2	1447	155	137	102	9	-	-
"	FAR	-	19	19	0.0	-	-	-	-	-	-	-	-	-	-	2	294	-	388	-	9	1	-	-	-
LINDSAY	RTA	114	131	125	4.6	2296	79	151	1857	-	27	-	34	-	1	333	6572	36	151	2	129	75	1	6	3
"	RES	-	576	569	1.2	2109	-	-	1340	2	2	-	370	-	-	449	36827	17	825	20	541	51	2	1	5
NORTH BAY	RTA	157	159	151	5.1	2927	51	3	2307	-	17	-	83	7	3	748	5414	111	12	3	-	374	6	12	-
PARRY SOUND	RTA	137	135	114	15.5	3004	368	210	2029	-	97	-	32	-	41	560	4365	81	39	1	126	216	-	10	3
"	RES	-	391	289	26.1	2336	-	-	1332	-	2	-	21	-	1	792	9600	65	218	11	453	414	-	9	1
PATRICIA CENTRAL	RTA	234	739	639	13.6	34902	101	112	12013	-	39	180	422	392	50	6722	13140	2240	-	2	3606	2880	-	3	1
PATRICIA EAST	RTA	129	313	313	0.0	23346	79	93	5044	-	36	498	856	39	54	1846	8609	791	-	70	558	1421	-	-	-
PATRICIA WEST	RTA	256	672	538	19.9	24240	723	22	8373	-	237	-	307	510	18	3596	16993	801	1	1	2952	3568	9	31	2
PEMBROKE	RTA	61	61	61	0.0	2479	286	76	2126	-	151	-	101	-	45	431	4545	94	42	-	32	171	-	-	-
"	RES	-	63	58	8.0	-	-	-	264	-	1	-	1	-	-	94	1946	3	12	-	10	25	-	-	-
"	FAR	-	-	10	-	-	-	-	12	-	1	-	-	-	-	2	237	-	-	-	-	-	-	-	-
PORT ARTHUR	RTA	196	245	245	0.0	9592	988	406	4521	-	289	-	27	3	159	604	1445	108	-	-	21	1116	-	-	-
"	RES	-	34	34	0.0	322	-	-	122	-	-	-	-	-	-	5	38	-	-	-	-	38	-	1	-
"	FAR	-	23	23	0.0	-	-	-	-	-	1	-	-	-	-	34	-	-	-	-	-	-	-	-	-
RIDEAU	RES	-	928	820	11.2	-	-	-	375	-	-	-	451	-	-	257	52816	5	389	55	30	217	1	-	-
"	FAR	-	-	232	-	-	-	-	1	-	-	-	62	-	-	31	8554	-	65	3	-	24	-	-	-
SAULT STE MARIE	RTA	269	211	211	0.0	9182	945	165	2853	2	156	-	34	5	83	799	2473	154	-	-	222	910	64	61	-
"	RES	-	88	88	0.0	845	-	-	376	-	3	-	16	-	-	168	2031	6	-	-	39	138	6	1	-
SIOUX LOOKOUT	RTA	89	117	93	20.5	6559	291	277	1662	1	97	2	15	26	151	439	1416	69	-	-	378	657	-	1	-
SUDBURY	RTA	227	217	200	7.9	13798	14	-	5944	-	41	-	40	16	-	1163	6888	167	11	-	180	551	10	49	-
"	RES	-	161	88	45.4	-	-	-	529	-	-	-	43	-	-	105	1794	9	-	1	102	79	11	6	2
SWASTIK	RTA	144	159	159	0.0	3722	320	7	2132	-	104	-	43	39	1	634	2384	87	-	4	56	903	-	14	-
"	RES	-	10	10	0.0	94	-	1	35	-	1	-	-	-	-	3	129	-	-	-	-	4	-	-	2
"	FAR	-	-	-	-	-	-	-	-	-	8	-	4	1	-	35	79	-	-	-	37	84	1	16	4
TWEED	RTA	185	181	163	9.0	6833	-	-	2910	-	6	-	19	-	-	477	12462	66	139	3	8	62	4	2	-
"	RES	-	1091	1023	6.2	5289	-	-	2564	1	-	-	163	-	-	551	90528	42	253	18	276	160	4	2	5
"	FAR	-	-	80	-	-	-	-	-	-	-	-	-	-	-	3	2681	-	2	-	-	-	-	-	-
WHITE RIVER	RTA	153	114	114	0.0	8574	450	481	2604	2	140	-	39	60	201	773	487	139	-	-	145	1185	-	15	-
TOTALS		3723	11914	10437		222108	7519	5461	91484	34	2335	685	4604	1430	2767	30264	607645	6203	10669	2506	14256	23816	176	387	25

RTA- REGISTERED TRAPLINE AREAS
RES- RESIDENT TRAPPING LICENSES
FAR- FARMER TRAPPERS

RTA- TRAPPERS 4965
RES- " 6059
FAR- " 890

PER. RTA TRAPPERS RETURNS MISSING 14.1
" RES " " " 8.1
" FAR " " " 32.6

47.3 OF BEAVER QUOTA CAUGHT
31.1 OF FISHER " "
50.6 OF MARTEN " "